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THE IRISH BUILDER AND ENGINEER.

A JOURNAL DEVOTED TO

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ARTS AND HANDICRAFTS.

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HEAD OFFICE

JANUARY 12, 1906.

34 LOWER ABBEY ST.,
DUBLIN

Price 1d

TOPICAL TOUCHES.

The Society of Architects, London, have elected Mr. Harry Hems an honorary member. Hearty congratulations to our old correspondent!

* * * *

Messrs. Crawford and Frame, of Dublin, have secured the contract for the Clontarf Main Drainage, at a price more than £1,000 over that which Mr. Kelly, of Kilkenny, tendered for in the recent abortive competition.

* * * *

Every Irish architect and painter will feel proud that Sir Thomas Drew, P.R.H.A., has been made the recipient of two marked compliments, in that the Royal Society of British Artists, and the Royal Scottish Academy have elected him to honorary membership.

* * * *

Architects in search of a good, tall pattern, tapering chimney-pot, may not be aware that such are stocked by Messrs. McFerran and Co., of Tara Street and Beresford Place, Dublin, and left either in the natural red colour, or tarred black, have a very good effect, far preferable to the common yellow or whity yellow pot on the market. The tapering is, moreover, said to aid the draught.

* * * *

As usual at the festive Christmas, or New Year's season, our London contemporaries have signalised the occasion by a special effort. Prominent amongst half-a-dozen building or architectural journals must be signalised "The Builder" and the "British Architect." "The Builder" has year by year presented to its readers a bulky and interesting collection of illustrations of work, but most notable has been each year an allegorical architectural conception, in the shape of a pen and ink or wash drawing, from the hand of the accomplished and scholarly editor, Mr. H. H. Statham.

* * * *

The "British Architect" has some fine bits of pen and ink work, also from the hand of its editor. When the architectural history of these times comes to be written, no series of drawings will stand out better than the fine procession of sketches which week in and week out appear from the one hand in the "British Architect."

* * * *

Inquiries under the new Labourers' Act were lately held in Balrothery and Dunshaughlin Rural Districts. The great need of housing for the rural labouring classes is demonstrated by the fact that the opposition practically collapsed in both districts at the inquiries. In the former district it is proposed to build some 180 houses, and in the latter a considerable number. Mr. Anthony Scott is the engineer for both schemes. In the Rathdown District four or five schemes are in contemplation. The first, for which tenders have been invited, comprises 56 cottages, the next 95, the third 32, and the fourth probably 50, or nearly 200 cottages, all of which, it is not too much to say, are badly wanted. In the Pembroke District, also, several large schemes are under consideration. No architect has been appointed as yet.

We hear that early in the present year certain representatives of the Society of Architects, London, will visit Dublin for the purpose of furthering the Registration propaganda, with which the society has been so prominently identified.

* * * *

The loftiest building in the world will be the new offices of the Metropolitan Insurance Company in Madison Avenue and Fourth Avenue, New York. It will cost £60,000, and be 48 storeys high, with a dome 657 feet high.

* * * *

The first Garden City Company announce another competition at Letchworth for from 1st June to September 30th next. Not dismayed by the impractical character of the majority of the designs shown or realised in the last exhibition, the Company are anxious to follow on towards the ideal. May they have better success this time! Persons are invited to submit plans and models, or to erect actual structures, as before.

* * * *

The Railways Commission has been sitting for some time, under the presidency of Sir Charles Scotter, inquiring into the grievances of Irish railway travellers, and into the serious disabilities under which consigners of Irish goods labour in their own country. The Commercial Travellers' Association has formulated a series of complaints on the subject, with a draft précis of evidence prepared to be offered to the Commission. The dissatisfaction that exists in Ireland on this subject is undeniable, and no class suffers more in this respect than architects, whose professional duties frequently call them to distant parts of the country. Third-class passengers are, on most Irish lines, treated simply anyhow.

* * * *

The Commercial Travellers' complaint sets forth the excessive difference on Irish lines between the second and third class fares. A table of English and Irish fares is quoted, showing that, while the difference on English lines is rarely over 10 per cent., the difference on Irish lines (with the sole exception of one line in the North) varies between 50 per cent. and 84 per cent.

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The question of freights is too large to here touch upon, but it is generally recognised that Irish manufacturers labour under grave disabilities.

* * * *

Our readers may not be generally aware that Messrs. Brooks, Thomas and Co. are agents for "Opalite," a well-known durable system of wall tiling, suitable for all classes of work for which ordinary wall tiling is adapted, and with which it compares favourably in price, particularly for use on old walls, as its thickness is much less than that of an ordinary tile, and consequently it lies closer to the wall, and becomes more incorporated with the rendering behind. It has also been used exteriorly, Moran's Hotel, at the corner of Lower Gardiner and Talbot Streets, being an example existent in the city for several years past. It can be had in any size tiles, and in white and a variety of pleasing shades.

THE DANCERS OF SLUDGE HEAPS.

By MR. JOHN P. LORD, F.R.M.S., Etc.,

Bacteriologist to the Maldens and Coombe Urban District Council.

The prominence into which the experiments of Mr. W. J. Dibdin and the elaboration of his masterly method of sewage purification have brought the rôle played by bacteria in relation to sewage makes it unnecessary for me to apologise for calling your attention to the bacteriological aspect of that bugbear of the sanitary scientist, sludge; and at the outset let me emphasise the fact that I do this not with any morbid desire to create a scare, but simply with a view to enabling us to recognise sources of danger, and so successfully combat the enemies against which we wage daily warfare in the interests of public health. A foe well known is a foe half conquered.

Sludge, as we all know, is the precipitate obtained from crude sewage by the action of certain chemicals, the most common, perhaps, being that resulting from the addition to the raw sewage of ferric alumina and lime chloride. It has been claimed for this process that the solid material thrown down is harmless, and the sludge fit and proper matter to be distributed broadcast to farmers and others for purposes of fertilisation. Now so far as the *elementary* chemical composition of sludge is concerned this may be true, but the same might be said, and with equal truth, of prussic acid, the *elementary* composition of which is simply hydrogen, carbon, and nitrogen; yet no one will contend that prussic acid is harmless. Roughly the chemical composition of sludge consists of a certain number of mineral salts, together with a number of highly complex organic substances resulting from the animal and vegetable constituents of the sewage. Not to mince matters, sludge may be held to consist of the solid portions of excrement and decaying vegetable matter, changed but little as to its chemical composition, and mixed with lime and iron and alumina. It is not, however, with the chemical composition of sludge that I have to deal, for the danger arising from this agglomeration of filth does not lie in that direction, inasmuch as no one would dream of eating sludge-contaminated food. The enemy lurking in the heaps of evil-smelling, evil-looking matter is much more dangerous because it is much more active and is unseen. I refer to the bacteria which are found in and those which can grow on sludge.

Whatever may be claimed for the precipitation process of sewage purification, it certainly is not a disinfecting process, a fact which is proved by the presence of the *Bacillus coli communis*, very abundant in fresh sewage, and a common inhabitant of the intestines of man and the lower animals, in the fresh sludge. Nor is it to be expected that it should be truly a disinfectant process, inasmuch as the disinfectant power of iron sulphate in relation to formalin is as 90 to 25,000, and therefore a gallon of sewage would require about 772 grains of sulphate to kill the bacteria, while the disinfectant power of lime chloride is as 25 to 25,000 in relation to formalin, and each gallon of sewage would require about 2,820 grains for perfect disinfection. These quantities are impossible in actual practice, the average quantities of these chemicals added being about two and a half grains of ferric alumina and five grains of lime chloride per gallon of crude sewage.

Disinfection, then, being out of the question, what do we find in sludge? To gain an insight into the micro-plant life of sludge, I have just completed a fairly exhaustive series of experiments, and have obtained some interesting results. The methods employed I will not trouble you with; suffice it to say that they were those which naturally suggested themselves to a bacteriologist.

First as to the number of bacilli in sludge. We have to consider first the sludge, perfectly fresh, as it comes from the press, and then sludge which has been on the heap for a short time, and to the bacilli in both of these ought to be compared with the average bacteria in ordinary soil, and especially with those in the soil in the district.

After many experiments I have obtained for fresh sludge an average of five hundred and fifty-five million three hundred and thirty thousand microbes in each gram of solid matter (555,330,000). These all grow well at the ordinary temperature of the air, but of them only a paltry six hun-

dred and sixty thousand grow at the temperature of the body. Now, in liquid sewage, prior to sedimentation, the highest number of microbes recorded is eleven million two hundred and sixteen thousand per cubic centimetre, the fluid equivalent of a gram, that being the result of a series of experiments by Drs. Laws and Andrews, while Dr. Jordan, of Massachusetts, puts the average number of bacteria in a cubic centimetre of liquid sewage at seven hundred and eight thousand only. The concentration of bacteria in sludge is therefore very apparent, and if there be danger in microbes, then the distribution of sludge resolves itself into the distribution of excessively polluted matter, more dangerous than raw sewage.

It may be suggested that exposure to the air may tend to reduce the number of microbes in sludge, but the following figures, obtained after many experiments and presented as an average for the works examined, show that, far from decreasing, the bacteria flourish amazingly. In a gram of weathered sludge, at least a month old, the average number of microbes has been determined as two thousand six hundred and forty-one millions nine hundred and forty-four thousand (2,641,944,000). Moreover, the relation between the numbers in fresh and weathered sludge—namely, about one to five—has been preserved in all my experiments. Of the bacilli in weathered sludge three million one hundred and thirteen thousand seven hundred per gram grew at the temperature of the body, being exactly in the proportion we should expect when compared with those which grew at the same temperature, and derived from fresh sludge. The importance of this will be apparent when it is remembered that the microbes capable of causing disease are to be found among those which can grow at the temperature of the body, and from the above figures we see that exposure to the air has not lessened the proportion of these in sludge.

The above microbes grow in air, but sludge also contains a certain number of microbes which can only develop in the absence of air or oxygen; these are called anaërobic bacteria. Of these I obtained an average of one million two hundred thousand per gram in fresh sludge and only eight hundred thousand per gram in old sludge.

As regards ordinary soil, the figures vary tremendously, according to the spot from which the soil is taken. Dr. Hewlett gives an average of from two hundred thousand to one million microbes per gram.; Professor Benner found only a thousand microbes in a gram of sandy country soil, and Professor Maggiora gives the following list, the first two samples being taken ten inches below the surface of the earth:—

Sand from hill near Turin	...	...	1,000 per gram.
Tilled agricultural soil, well manured	11,000,000	„	„
Street in Turin	...	...	78,000,000 „ „

Common garden soil in Surrey, manured a year ago, gave me an average of two million eighty-five thousand six hundred microbes per gram, of which one-tenth grew at the temperature of the body, and one hundred thousand were anaërobic.

Comparing these with the figures given for sludge, we are again bound to be impressed with the bacterial richness of the supposed “purified” precipitate.

Coming now to the species which I have been able to isolate from sludge. The best authorities say that the following are the most prevalent bacilli in fresh sewage:—

B. fluorescens liquefaciens, *Proteus Vulgaris*, *B. filamentosus*, *mesentericus*, *mycoides*, *subtilis*, and *coli communis*. With the exception of *filamentosus*, I have found all these in fresh sludge, and also in weathered sludge, and the proportion of one coli to nine of the other bacilli, as given by Dr. Hewlett for fresh sewage, is maintained in the sludge. But, in addition to these bacilli, I have also found the bacillus of typhoid fever, *B. typhi abdominalis*, in two samples, and also the following: *ramosus*, *cloacae*, *superficialis*, *Urobacillus*, *freudenreichii* and *Spirillum flavum* in its three varieties.

The anaërobic bacilli found consisted of *Clostridium foetidum*, *B. tetani*, *liquefaciens magnus* and *solidus*.

The gases evolved by the anaërobic in growth were most foul smelling, the rotten egg odour of clostridium and the bad garlic smell of the tetanus being overpowering when the tubes were opened.

Of these bacilli, as far as we know at present, the coli communis, the typhi abdominalis, and the tetani are actively pathogenic, the last-named being the cause of tetanus, commonly called lockjaw. To discount the presence of tetanus bacillus in sludge, it must be remembered that it is commonly to be found in garden earth.

Besides the bacilli already mentioned, I isolated a variety of single individuals belonging to numerous species. I also found a curious anaërobic bacillus, which grows on Agar, forming black, radiating colonies, and sporulating, but apparently non-motile, which is a new species and peculiar to sludge, though it does not appear to be an invariable inhabitant of this horrible compound. This I propose to call *Bacillus Dibdini*, in honour of the promoter of the Bacterial treatment of sewage.

The notion that sludge might form an admirable culture medium must have presented itself to many bacteriologists who have seen the heaps of greasy-looking matter, and so I can claim no originality for the idea, but I do not believe that hitherto any bacteriologist has actually tested the qualities of sludge as a medium. Therefore I venture to put the following facts before you: I took a set of petri dishes and carefully placed a layer of sludge some five millimetres thick at the bottom of each, smoothing the surface down with a sterilised scalpel. These were submitted to intermittent sterilisation at a temperature of over 100° Centigrade so as to kill any bacilli that might be contained in the sludge. When the plates were perfectly sterile they had shrunk away from the sides of the dishes, leaving a channel about three millimetres wide all round.

The surface of each was now slightly moistened with sterile distilled water, and living cultures of anthrax, diphtheria and typhoid bacilli were planted thereon, the greatest care being taken not to carry over any of the previous culture medium on to the face of the experimental plates. A little distilled sterile water was placed in the channel round the plates, and the sludge plates placed in the incubator at blood heat.

The anthrax developed fairly rapidly, forming a gelatinous film on the surface of the scum, which could be lifted up with a platinum wire. The diphtheria and typhoid also grew, but not so readily. In their cases the growth took the form of glistening film.

After a time, when the water supply was exhausted, the anthrax was found to be entirely in the spore form, in which condition it could easily be blown about, and thus cause infection. The typhoid and diphtheria also dried up, but though I was able to get fresh cultures from the dry surface of the plates on which the diphtheria and anthrax had grown, I failed to get satisfactory cultures from the typhoid after three weeks.

Remembering that very often some bacilli flourish at the expense of others, and that therefore in fresh sludge, unsterilised, there might be present some microbes which would kill or starve out the pathogenic bacteria, I performed similar experiments, using fresh sludge carefully out, with proper precautions, from the centre of a large slab of the material, and on these plates anthrax, typhoid and diphtheria were planted. Again the pathogenic forms grew, the diphtheria developing a number of clubbed and other degenerate forms, and the anthrax taking on the vegetative state as soon as the moisture began to get scanty. When the sludge was quite dry, cultures could be obtained from the dust on the surface of the anthrax and diphtheria plates with great readiness, and from the typhoid plate a culture was obtained which resembled typhoid, but was not truly typical.

From these results it seems to me that sufficient importance is not attached to the possible danger of accumulations of sludge. The surface of the heaps soon dries, and who can tell what disease germs may be blown about from the dusty, bacteria-laden slabs of microbe food?

Further research along these lines is earnestly needed in the interests of public health, for until all possible resources of danger arising from sewage have been removed the work of the sanitary engineer and sanitary scientist is not done.

There is yet another prolific breeding ground for bacteria to be found beside the sludge heap—namely, the accumulations of "grating soil," which from time to time is removed

from the gratings. As an average I have arrived at the number forty-one million seven hundred and twenty-eight thousand representing the number of microbes in a gram of grating soil, and the specific organisms found in the soil were those prevalent in sludge, the Colon bacillus being well represented in cultures on plates.

From the above figures and facts I think it is abundantly evident that the products of the precipitation processes are hot-beds of germs, some of which are disease producers, and are possible breeding-grounds for virulent disease-creating microbes, should such happen to contaminate a sludge heap. The problem of treating such sludge heaps is not for me to solve; but, in the face of the above evidence, it seems certain that the ideal method of purifying sewage is one which prevents the formation of sludge or grating soil, and which, preferably, turns the presence of the myriads of micro-organisms in sewage to good account by making them fight in the interests of sanitation instead of against it. Micro-organisms, as a class, are like edged tools, they can be of the greatest service to man, or they can be actively dangerous. They form a factor in the problems on sanitation which has to be regarded, and which modern engineers are at last beginning to realise the importance of.

Here is the actual position of affairs. You have to remove all noxious matters from sewage, if your sanitation is to be considered good. By the precipitation process you concentrate the very noxious microbes—call them sludge—and distribute this sludge to farmers and agriculturists to spread about wholesale. You then test your fluid filtrate, nearly free from microbes, and say your purification is perfect, ignoring the fact that you have still your accumulations of dangerous sludge to account for, and which you are either keeping on your farm to be a nuisance and a danger to the neighbourhood or are casting broadcast on the land to become a possible source of infection. Sludge is very dangerous, and the sooner the fact is recognised, and means taken to combat the evil, the better will it be for the health of the public.

LAW CASES.

Homan and Rodgers v. Hill

Mr. Justice Wright concluded the hearing, without a jury, of the case of Homan and Rodgers v. Hill, in which the plaintiffs, whose business address is at 10 Marsden Street, Manchester, seek, as engineers and constructors employed by Mr. Samuel Hill, of Cork, the contractor for certain building works in connection with Ballinasloe Lunatic Asylum, to recover from him a sum of £428 7s. 9d., balance due for work and labour done in relation to the contract. The total amount originally due was £4,076 7s. 9d., of which £3,700 had been paid, leaving a balance of £376 7s. 9d., which, with £52 interest, charged at the rate of 5 per cent., made up the amount of the present claim. The defence was a denial that any contract was entered into directly with the plaintiffs, and a plea that if there was any contract it was made between the plaintiffs and the Board of Control of Lunatic Asylums, the defendant was only bound to pay plaintiffs such sums as and when he himself received payment of them from the Board of Control, and that as a fact he had not received payment at the time the action was brought. Defendant also counterclaimed for £20 for works and services in connection with the loading, unloading, and casting of steel joists for the plaintiffs. Mr. Browne, K.C., and Mr. Pim (instructed by Mr. Good) appeared for the plaintiffs; and Mr. Bourke, K.C.; Mr. M. J. Dunn, K.C.; and Mr. T. T. Harley (instructed by Messrs. J. and J. Foley) represented the defendant. Mr. Justice Wright, in the course of his judgment, said the amount of the counterclaim had been paid into court, and, therefore, that element in the case had disappeared. With regard to plaintiffs' claim, his lordship held that contractual relations existed between the parties to the action, and that there was no term in the contract that the plaintiffs should wait for their money until the defendant himself received the money. He gave judgment for a sum of £277 6s. 4d., in addition to the sum of £89 9s. lodged in Court. A stay of execution until next term was granted on the application of Mr. Bourke, K.C.

HUDSON ON BUILDING CONTRACTS.*

We have just received the second volume of the third edition of this valuable work (the first volume will not be ready until February). The fact that the work has gone into a third edition is proof positive of its excellence. The volumes are quite substantial in volume, and contain much matter, excellently well put together, and covering a very wide range of ground dealing with building difficulties and disputes. If a fault may be found, it is this, that too much space is devoted to the charges and decisions of the learned judges, without regard to the real practical bearing and application of the manifold decisions. It has too much the flavour of a book of law reports. To the average architect or engineer, destitute of any accurate legal knowledge, it is rather confusing, and not so helpful as it might be were the decisions better annotated, commented upon, and explained, than is the case. Probably this may be set right in the first edition when it appears. On the other hand, much credit is due to the author for the extremely clear way in which these decisions are reproduced, and possibly in the first volume may be more critically dealt with.

It seems strange, perhaps, to criticise thus a work now generally regarded as a standard authority on a very vexed question, but so many admirably arranged works have of late been published, that there is quite a competition on the subject of supplying the want felt for a really comprehensive law-book on the subject.

The majority of the ruling cases dealt with are in connection with difficulties caused by disputes arising out of differences between plans and specifications and omissions in bills of quantity and the resultant architect's decisions; and the result seems invariably in the long run to be, that although it may bear somewhat severely upon contractors, the engineers or architects' interpretation has, by reason of the stringent conditions of the contracts, been upheld.

One of the most important law cases dealt with is that of *Pearson v. Dublin Corporation*, which ought to become a classic decision, but it has so recently been considered in our columns that we do no more than mention it, referring those who would know its legal bearing and application to the work we are reviewing. Another case, however, *Ford v. Bemrose*, although before now referred to in our columns, has, despite the fact that it was decided in 1900, not yet been fully reported in any architectural or building publication that we know of. It was a case raised upon appeal, and had reference to the warrants of quantities. The quantities, it would seem, were prepared by the architect (a bad custom) and appended to the specification, but not guaranteed or incorporated formally in the contract. It was tacitly admitted that serious omissions had occurred, but the contractor's right to payment for these was disputed. The position and bearing on a contract of quantities seem, by now, to be pretty well established, but in no other case that we know of is there such an exposition on the part of the Bench of the reasons why such mistakes in quantities should not be made good at the expense of the employer. The English Master of the Rolls and Lord Justice Romer put the whole matter in a nutshell, so to speak, and show very clearly to any open-minded man that the rectifying of such mistakes has two aspects—the employer, as well as the builder—and that it is all very fine to say that the employer has got the value of the work omitted from the quantities; yet, on the other hand, as Lord Justice Romer points out, if a man enters upon a contract and liability to pay £1,000, why should he, without any contributory action on his part, be called upon to discharge a liability of £1,500?

If the thing has a moral at all, it is this, that persons not exceptionally expert in taking out quantities, as, for instance, the average engineer or architect, should hesitate to do so, while those who do undertake this office for profit should feel very confident that they are competent, and should use scrupulous and exacting care in so doing.

The case of *Ford v. Bemrose* is of such vast importance to all engaged in building that we venture to give a brief abstract, as follows, of judgment as recorded in Hudson.

The following were the material parts of the special case:—

At some time prior to the date of the contract, dated May, 1895, Messrs. Bemrose instructed Mr. Ernest R. Ridgeway, an architect, of Long Eaton, to prepare on their behalf plans for the erection of certain works in Park-street, Canal-street, and Carrington-street, Derby, and to invite tenders for the execution of such works. Mr. Ridgeway prepared

the plans, and invited tenders upon such plans and certain conditions of contract and bills of quantities, and with such tender furnished a schedule of prices. Such schedule of prices was for the purpose of determining the amount to be paid or allowed in respect of any alterations or deviations from the original plans which might be determined upon during the progress of the works, and the prices in the schedule were the prices referred to in the contract as the prices upon which the contract was based. Messrs. Ford's tender was accepted, and the contract in question entered into between Messrs. Bemrose and Messrs. Ford. The contract followed, and incorporated and formed one document with a copy of the conditions of contract upon which Messrs. Ford tendered. The arbitrator referred to the terms of the contract, the material facts of which are printed *ante*. The contract provided that all disputes should be referred to arbitration under the Arbitration Act, 1899, and contained a covenant from Messrs. Ford that they would "do and preform the whole of the works required in accordance with the plans and specifications for the erection of the new works, and provide all labour, plant, materials, etc., of whatsoever kind required, at and for the sum of £10,559." Messrs. Ford completed the work included in the contract, and on April 1st, 1897, Mr. Ridgeway, by his final certificate, certified that there was a balance owing to Messrs. Ford of £1,530 13s. 5d.; but the latter being dissatisfied with it, and other disputes having arisen under the contract, recourse was had to the arbitration clause in the contract. It was alleged before the arbitrator, and the arbitrator found as a fact, that the quantities set forth and stated in the bill of quantities upon which tenders were invited were in material and substantial respects insufficient, and that the actual quantities of the works required to be executed in carrying out the works in accordance with the plans exceeded those in the bill of quantities. It was also alleged before the arbitrator, and found by him to be the fact, that it was a general usage in the building trade that where tenders are invited for the execution of works in accordance with plans, and a bill of quantities is furnished, a person making a tender is not expected to verify the quantities himself, but is expected to assume that the quantities are correct, and to tender upon that assumption; that if such quantities proved to be greater or less than the actual quantities, the price was to be reduced or increased by an amount ascertained and determined by the scale of prices given in the tender as the scale by which payment for extras was to be determined. The arbitrator also found as a fact that Messrs. Ford did not verify the quantities, and tendered and entered into the agreement on the assumption that the quantities were correct. He also found that various alterations of the works contracted for were decided upon during the progress of the works, and that the sum of £3,281 was to be added to the contract price in respect of such alterations and deviations; that the total value of the work executed at the prices upon which the contract was based was £13,840, and that £8,750 had been paid to Messrs. Ford by Messrs. Bemrose.

The questions left to the Court by the arbitrator to be determined were:—(1) Whether in ascertaining the amount to be paid by Messrs. Bemrose to Messrs. Ford regard was to be had to the aforesaid usage in the building trade; (2) whether Messrs. Ford were entitled only to be paid the sum of £10,559 mentioned in the contract, with such deductions and additions as were by the contract provided to be made in respect of alterations or deviations from the original plans determined during the progress of the work; or, (3) whether Messrs. Ford were entitled to be paid the value of all the works actually executed by them at the prices upon which the contract was based, and whether such value should be more or less than the sum of £10,559 mentioned in the contract.

The arbitrator awarded that, if the Court answered question 1 in the affirmative, £5,090 remained due to Messrs. Ford; question 2 in the affirmative, £2,303 10s. was due to Messrs. Ford; question 3 in the affirmative, £5,090 was due to Messrs. Ford.

The Divisional Court (Kennedy and Phillimore, JJ.) answered the questions in favour of Messrs. Ford, the respondents, holding that the builders had a right to say that they had contracted upon the basis of the accuracy of the representations contained in the quantities forming part of the specifications. The Court held that there had been a breach of what the builders were entitled to treat as a representation or warranty forming part of the contract, and to the extent to which the warranty was not fulfilled, and the builders were damaged they were entitled to receive compensation. Judgment was accordingly entered for Messrs. Ford, the builders, for £5,090.

Sir Edward Clarke, K.C., and A. Lyttleton, K.C. (with them Coventry), argued on behalf of the appellants that the contract was for a lump sum, and that the quantities in the bill of quantities formed no part of the con-

*The Law of Building, Engineering, and Ship Building Contracts, and of the Duties of Engineers, Architects, Surveyors, and Valuers; with precedents and reports of cases. By Alfred A. Hudson, of the Inner Temple, Barrister-at-Law. Third edition. 1907. London: Sweet and Maxwell, Ltd., 3 Chancery-lane. Two vols. £2 12s. 6d. the two.

tract, and, further, that the respondents' only course was to sue on an express warranty, which they had not done. What the respondents did was to impose on Messrs. Bemrose a contract other than that which they had made, binding the appellants to go on with the work, and then to charge them one third more than the lump sum they had agreed to pay.

English-Harrison, K.C., and Hudson, for the respondents, contended that the "specification and bill of quantities" really formed one document, which formed the contract. That there was an implied warranty that the quantities in the bill were correct. That the plans were sufficient to enable the builders to check the bill of quantities, and that the document being an abbreviated specification, the architect had express power to extend the works so far as he thought necessary, and therefore Messrs. Bemrose were under an obligation to pay for the works so extended by the architect.

Now disputes arose between the parties as to what sum was payable to these builders under the contract, and that dispute was referred to an arbitrator other than the Architect. The point that arises for us is this: it turns out that in fact the quantities on the back of the specification were too small, and to a considerable extent too small, that is to say, to do the work comprised in the plans and specifications would involve a larger amount of material and labour than was apparent from the quantities set out on the back of the specification. I emphasise that, because it at once negatives and annuls the last argument addressed to us by the respondents in this case, that is to say, that there were in point of fact not materials before the builder at the time of his tender which would enable him to tender at all, that is, the thing was so indefinite that there was, for all practical purposes, no specification, but, taking the specification and plans together, the matter was at large.

There are many decisions in this matter, in all of which that is the governing line, that this class of thing is not warranty, but only a representation; but if we want distinct authority in point of fact, that it takes no additional significance, by reason of the fact that it is incorporated with one of the documents which is, by one of the terms of the contract itself, made a basis, I think we have distinct authority in the case which has been last cited, of *Sharp v. San Paulo Railway Company*, (a) where you have a contract to do the work in accordance with plans and specifications, and in the contract itself, as one of the schedules to the contract, there was a specification, with quantities. It turned out there (the quantities they were dealing with were very large figures), the quantities were something like a half too little. They indicated certain work of excavation, which was something like half what would have actually to be done; but there, it was held, that that did not give any remedy to the contractor; that he had had the opportunity, and if he had had the opportunity of making his own estimate, but he had chosen to accept that which was offered to him, and there being no *mala fides* in the matter, he must take the consequences. It is the same case we have to deal with here. But it does not stand there upon the authorities. If we go back to the older case of *Scrivener v. Pask* (a) in 1 Common Pleas, you find the same thing with this difference, because there the building owner, through his architect, sent in the bill of quantities—it was a separate document, not appended to the specification, and not in that sense incorporated with it, and made the basis of the contract, but the principle is the same, because the principle at the bottom of it is, that it is a representation and not a warranty. It is not intended to be anything more than an estimate, and it is not made part of the contract binding on the employer.

But to claim the contrary is to substitute a contract of measure and value for a contract for a lump sum. Mr. English-Harrison does not seem to me to give the answer to that point, that the lump sum ceased to have any significance in the discussion at all, if that is the true meaning of this contract. But it seems to me the cardinal point in this contract is, it is a contract for a lump sum, and, therefore, it seems to me, my learned brothers were wrong in the view they took of this contract.

No doubt they were captivated by the view that there was an apparent hardship on the contractor, who has found himself obliged to expend more money than he calculated on, because a mistake was made, not by him, but by the building owner; but it seems to me the answer to that, and the justice of it is, it was perfectly competent for him to make his own estimate, and if he relied on what was done by the architect and chose to adopt it, he, just as much as the building owner, has backed his opinion of the architect's capacity, and must take the risk as much as the building owner takes his.

Under the circumstances I think the decision of the Divisional Court is wrong.

The arbitrator puts these questions, first of all:—"Whether, in ascertaining the amount to be paid by Messrs. Bemrose to Messrs. Ford, regard is to be had to the aforesaid usage in the building trade?" I think clearly not. Secondly, "Whether Messrs. Ford are entitled only to be paid the sum of £10,559 mentioned in the said contract, with such deductions and alterations as are by the said contract provided to be made in respect of alterations or deviations from the original plans determined upon during the progress of the work?" I certainly think they are. And, third, and this is where I differ from the Divisional Court, "Whether Messrs. Ford are entitled to be paid the value of all the works actually executed by them for Messrs. Bemrose at the prices upon which the contract was based, whether such value should be more or less than the sum of £10,559, mentioned in the said contract." As I understand, the Divisional Court have answered that question in the affirmative. There, I think, they are wrong. For these reasons I think this appeal must be allowed.

Romer, L. J.—In my opinion, when the documents in this case are looked at, it appears to me reasonably clear that the contract was one that I may call a lump-sum contract—that is to say, the contract by the builder to build works as a whole of the building owner for a lump sum, and not such a contract as the respondents in this case wished to make out; that is to say, a contract by the builder only to build or erect certain specified amounts of work—so many square yards of excavation, so many yards of brickwork, so many feet of carpenter's work, and so forth. It is clear to my mind that there was no such contract as that. It is not a case whereof if it turned out that the bills of quantities had been mis-stated, say, in favour of the builder, the building owner could have called on the builder to have made good any sum of money to him, because the builder had not expended quite so much labour as would appear by the bill of quantities he would have to expend, or *vice versa*, it is not a case where if it turns out that the builder has to do more than appears on the bill of quantities, any compensation has to be paid to him by the building owner. The fact is, the bill of quantities in this case was no essential part of the contract at all. It was not really a part of the specification, but something to be deducted from the plans and specification, which really showed the work as a whole that had to be done by the builder. It was an estimate by a person who had taken out the quantities from the plans and specification, and which might just as well, for the purpose of this contract, have been contained in a separate document. It appears to me that, apart from other provisions of this contract, the true intent and effect of it are shown by the two first clauses of what are called the "The Conditions of Contract."

The next point arises: What is the effect of the statement of the quantities in the margin of the specification? First dealt with as a representation, what representation is it? Fairly looked at, as far as I can see, it is only a representation by the building owner that some qualified person has taken out the quantities in the usual way from the plans and specification, and that that person's bill of quantities was, as stated, in the margin of the specification. That representation was perfectly true. Then follows the question: Can it be inferred from the circumstances of this case that there was any warranty by the building owner that that person who had taken out the bills of quantities had taken them out correctly? It seems to me too late in the day to say that there was any such warranty, or even warranty to be implied. The cases alone settle that point, and I need not even refer to them after what My Lord has said. There is nothing, to my mind, in this contract, and in the circumstances connected with it, from which this Court ought to infer that there was any such guarantee or warranty as has been insisted upon on behalf of the respondents' case.

That really ends the case. If the construction of the contract be what I have said it is, and there is no warranty, there is no ground on which the respondents can base their claim before us.

With regard to the question of usage, I have nothing to add beyond what My Lord has said. It is clear that such usage cannot be imported here to practically contradict the meaning and effect of this contract. It appears to me for these reasons that the judgment of the Court below was erroneous, and ought to be reversed.

Mathew, L. J.—In this contract the contract was to execute certain work according to the plans and specifications, and, if the specification had been properly examined and dealt with, it seems clear that the work could have been properly undertaken for one-third more than the price mentioned in the contract. The builder has to admit that.

He says—I am exonerated from making any such enquiry because you, the building owner, undertook the accuracy of the quantities and guaranteed them. It is said, on the other hand, no such guarantee was made. There was no ground on which the builder could suppose that any such guarantee was intended. To see what was meant by the parties, we have to look at the course of business which has so frequently been brought to the attention of the Court. The building owner employs an architect to prepare specifications and plans, and show the work to be done by the builder. That is all the building owner does in the first instance. In this particular case there is no proof that he knew anything about the practice of taking out quantities. It is said he should inform himself, and that he would be aware that quantities would be taken out. Under what circumstance are these quantities taken out? The architect who is desirous of carrying the matter through and finding a builder, who is not the servant of the building owner in any way, to facilitate the making of tenders, either himself or by a competent agent, prepares an estimate for the quantities. That, it appears to me, is all he does. The utmost that could be imputed to the building owner in such a case is an undertaking that, before tenders are asked for, his architect, a competent man, on his own responsibility, and for the information of the builder, prepares a bill of quantities. That was done in this particular case. As has been said, it is too late, after the authorities on the subject we have had discussed, to assert that this bill of quantities enters into the contract and becomes part of or one of its terms. It would lead to the result which has been so forcibly pointed out by the learned counsel for the appellants: that the contract would not be the contract that the building owner had entered into, but something totally different. There is a contract, say, for £10,000 which turns out to be a contract for £15,000 by which he is to be bound. It would be a most impossible condition of things. The building owner, when asked about the quantities, would say—I know nothing about quantities; it is a matter for the architect and the builder, not for me. I do not take the responsibility for them.

Now, the bill of quantities here, unfortunately, was not accurate. It was prepared, apparently, by a competent man, who made a mistake. It was quite open to the builder, if he chose, after the tender had been accepted, or before the tender had been accepted, to verify them. He did not choose to do it. What is the meaning of that? The business meaning, it seems to me, is that he reposes confidence in the architect, and trusts him to have done what is reasonably careful in the matter. Confidence is reposed by the builder in the architect in respect of other matters; he had authority given to him to deal with other questions that arise as to certificates, and so on, subject to the somewhat unusual condition in these matters—the right to go to an independent referee. But such confidence is reposed in architects in such cases as lead one to infer that a builder would in this matter, as in all others, be guided by his judgment and by his skill.

As far as custom is concerned, which was a final point taken on behalf of the respondents, it would be really a custom to alter a contract which people had entered into, which I have no hesitation in saying would be a bad custom. For these reasons I am of opinion that this appeal must be allowed.

Collins, M. R.: The order will be, "The Court being of opinion that Messrs. Ford are entitled to be paid only the said sum of £10,559, with such deductions and additions as are by the said contract provided to be made in respect of alterations or deviations from the original plans determined upon during the progress of the work. Judgment for the sum of £2,303 10s., which by the award in this case is made payable by Messrs. Bemrose to Messrs. Ford. Then the balance in Court will have to be paid out."

The same author, Mr. Alfred Hudson, B.L., through the same publishers, announce two other important law-books dealing with building matters, as follows:—

"The Law of Compensation: with Appendices of Forms, Rules and Orders, &c.," by Alfred A. Hudson, of the Inner Temple, Barrister-at-Law, Member of the Tribunal of Appeal under the London Buildings Acts, 1894 to 1895. Author of "The Law of Building and Engineering Contracts," and Joint Author of "The Law of Light and Air." Two volumes. Price, 37s. 6d.; for cash, 30s.; by post, 31s. And "The Law of Light and Air," by Alfred A. Hudson and Arnold Inman, of the Inner Temple, Barristers-at-Law. Second Edition. Price 7s. 6d., cloth. In addition, they publish works on "The Law of Easements," by G. Cave, K.C., which, as "Legal Literature" remarks, has stood the strain of 60 years' criticism; "Blythe on the Law of Easements," and Woodfall's "Law of Landlord and Tenant."

THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

The usual monthly Council meeting was held at 20 Lincoln-place, Dublin, on Friday, the 7th inst. The President, Mr. W. M. Mitchell, R.H.A., F.R.I.B.A., in the chair. Also present—H. Allberry, C. H. Ashworth, F. Batchelor, A. E. Murray, J. H. Webb, hon. sec., and F. G. Hicks, hon. treasurer.

An exceptionally heavy correspondence having been dealt with, the president and Mr. W. Kaye-Parry were appointed delegates to the approaching Sanitary Congress.

The following names were passed for ballot as members—Lucius O'Callaghan, Page L. Dickinson, M. A. Hennessy.

The Standing Sub-Committees were appointed as follows:—Professional Practice Committee—F. Batchelor, A. E. Murray, C. A. Owen. Arts Committee—G. C. Ashlin, Sir Thomas Drew, R. C. Orpen. Publication Committee—C. H. Ashworth, H. Allberry, G. P. Sheridan.

The hon. secretary was instructed to send the standard conditions of competition to the Clerk of Galway Union with reference to the proposed Fever Hospital and to the Town Clerk of Dublin Corporation with regard to the Technical Schools.

TRADE.

Messrs. Maunder Brothers, of Wolverhampton, draw our attention to certain of their specialities for the painting and decoration of public and private dwellings. These goods are thoroughly well known to and frequently specified by architects. They comprise:—Varnishes, Olsina water paints, Matsine colours (for staining woods), colours and paints, Olsina white and coloured enamels, flat white enamel, etc., etc. "Olsina" water paints we can, from personal knowledge, strongly recommend. One of the finest shades is a deep rich sombre red, of a character, depth and quality not usually obtainable with water paints or distempers.

To signalise the new year, the Messrs. Maunder have presented to their friends and customers a very useful desk paper-cutter and inch measure, upon which is inscribed, as a little reminder, the firm's name and address. Having used the desk cutter, we can speak of it as most acceptable.

ANSWERS TO CORRESPONDENTS.

Works on Public Libraries.

A.F.S.—Another correspondent, who consulted Mr. Batsford, tells us that that gentleman informs him that Burgoyne's "Public Libraries" is out of print, but that he will be publishing, early in the spring, an exhaustive treatise on the subject.

We regret that we cannot add anything to this. Mr. Batsford is always a most reliable consultant on such matters.

"Small Holdings."—Exhibitors are allowed in the smallest class of building £200 per house. This rather "begs the question." For £200 one should be able to do a very fair labourer's cottage. £150 has, by reason of the fact that it is the very maximum which can economically be expended upon such a structure, come to be regarded as the classic price for such dwellings. The average farm labourer has so small an income that 1s. 3d. to 1s. 9d. represents the very outside he can reasonably afford to pay in rent. Those who have not had intimate acquaintance with the conditions of life of such people fail to realise this fact.

Castleblayney Urban Council.—The following were the tenders received for the waterworks and sewerage works on December 17th, 1906.—Fleming Bros., £4,999 4s.; M'Kee and M'Nally, £5,623; John Callan (accepted), £5,660 os. 11d.; B. Firth, £5,949 14s. 5d.; Grainger Bros., £5,768 12s. 9d.; Pat M'Aleenan, £6,199 16s. 6d.; Frazer and Mosely, £6,296; Jos. Harvey, £6,145 12s.; Jos. Ross and McAdorey, £7,041 1s. 8d.

NEW CATHOLIC HALL, MONAGHAN.

The new fine Hall which has been built by the Catholics of Monaghan, adds still another structure of pleasing design to the many already existing in that old county town. Only recently opened, the new building will supply a long-felt want in the matter of a suitable place wherein to hold public meetings, concerts, entertainments, etc. All the arrangements in connection with the building were made subject to the approval of the Most Rev. Dr. Owens, Bishop of the Diocese, and the Rev. P. Keoun, Adm., and the town can now boast of as fine and up-to-date a hall as can be met with throughout the province. It was built at a very substantial sum by Mr. Wm. M'Mahon, contractor, Clones (since deceased), from plans supplied by the well-known architect, Mr. Thos. F. M'Namara, Dawson Street, Dublin.

The new building, which will be known as St. M'Carten's Hall, occupies a prominent site in Park Street, is parallel with St. Joseph's New Church, and faces the Main Street. It is approached by a short avenue, which leads from the entrance gate to the main door. The design is at once pleasing and of graceful proportions. The building measures 64 feet by 32 feet wide, and is 40 feet to the ridge. Local stone and brick have been used all through the building, which is a two storey one. The windows are circular-headed, with suitable mouldings, and the walls are 2 feet thick. The main hall, which is situate on the ground floor, is seated throughout—accommodation being afforded for at least 450 persons. At the upper end a stage has been erected, and measures 18 feet by 10 feet, at one end of which is a retiring room, and at the other end is a spiral staircase, which leads to the billiard-room above. The stage is separated from the auditorium by a lofty and finely-moulded arch. Access to the main hall is obtained through a large doorway, 6 feet wide, neatly wrought in cut stone, and heavily moulded. There is also an entrance-door in a porch to the right, whereby the visitor can reach the billiard-room and reading-room above without having to pass through the main hall. The reading-room is situate on the upper storey. It measures 34 feet by 28 feet wide, and is heated and well lighted throughout. Seats have been provided, and here, as in the billiard-room adjoining (which measures 25 feet 6 inches by 22 feet), the comfort of visitors has not been overlooked, and the internal fittings are all that one could desire. The roof is strongly constructed, and rests on four large principals. Lavatory accommodation has also been provided, and there are ante-rooms and other smaller apartments. There is an efficient committee of management—lay as well as clerical—and everything is now in full swing. The membership of the reading-room numbers close on 200.

THE ROYAL COMMISSION ON CANALS AND WATERWAYS.**Canals in Ireland.**

This Commission has now heard seventy-three witnesses during its visit to Ireland in October last, and at subsequent meetings in London during last month, concerning the canals and inland navigation of Ireland. The Commission will devote its sittings on February 19th and 20th to hearing certain further Irish evidence. The Secretary to the Commission will be glad to hear, before the middle of January, of any further evidence which it is desired to tender from Ireland on the subject of the inquiry.

The Commission will also be glad to receive, before the end of February, written communication addressed to the Secretary at 54 Victoria Street, Westminster, especially any further resolutions and memorials from County Councils and other local authorities, and from Chambers of Commerce, traders, and associations of traders in Ireland on the subject of Irish canals and waterways, and on the importance of improved and cheapened facilities for the transport of merchandise, goods, coal, and raw materials, and products of Irish agriculture and industries.

Messrs. Arthur Cort and Co. have recently removed to Bullace Works, 303½ Camberwell-road, London, S.E.

We have received from Messrs. Tuck and Co., of 19 Lower Abbey-street, a copy of a very convenient sized pocket book and diary which they are issuing to their customers. It contains within its covers a wonderful amount of information of a useful character, and we are sure that those who receive this little souvenir from the firm will appreciate it.

DIRECT ACTING BOILER FEED PUMPS.

In these days of high steam pressures it has been found necessary to give special attention to the question of boiler feeding, for the reason that the ordinary design of pump being unable to act against high pressures, has proved entirely inadequate for present requirements. Fly-wheel pumps, on account of their jerky motion when doing heavy duty, are subjected to great strain. In consequence of this they frequently need repairs, and occasionally break down altogether. Moreover, owing to their heavy consumption of steam the cost of upkeep is very great. For continuously delivering water of high temperature against a heavy boiler pressure the most satisfactory results are obtained by the use of single, long-stroke, slow-moving pumps of the Direct-Acting type. In pumps of this kind making only one-half the number of strokes for the same amount of work, wear and tear is reduced to a minimum, whilst the wastage of steam due to clearances is 50 per cent. less than in the other types referred to—a specially important feature in pumps which work without using the steam expansively. The first cost of a "Direct-Acting" pump may be rather greater, but the working expenses are very much less both as regards steam consumption and cost of repairs, and the small additional initial outlay is therefore soon amply compensated for. Messrs. Mather and Platt, Ltd., engineers, Queen Anne's Chambers, Westminster, London, S.W., are manufacturers of a direct-acting patent steam pump for boiler feeding which not only embodies the latest and best practice, but has several special features. All the working parts are simple in arrangement, and extremely easy of access. The steam passages and clearances are arranged so as to secure the highest efficiency with the lowest steam consumption. Special care has been devoted to the design of the valves, so as to minimise as far as possible ordinary wear and tear. The steam valves, for example, whilst of substantial design, have only two moving parts, and friction is reduced by a roller bearing on the valve lever. It is arranged so as to allow the pistons and rods to turn round whilst working, which ensures equal wear. A feature of the pump is that it is impossible to render it inoperative through wrongly setting the valve. The pump is always certain in action, will start from any position, and always makes full strokes even when working against the maximum pressure. As only single steam ports are employed, very little steam is wasted. The pump is silent in action, and owing to its slow speed and long, steady stroke, all shock is eliminated. Only the best material and workmanship are employed in the manufacture of these pumps, and as all parts are made to standard gauges and templates, spare parts can readily be supplied. Full particulars, prices, etc., can be obtained on application to Messrs. Mather and Platt at the address given above.

IMPORTS.**PORT OF DUBLIN.**

Dec. 24, per Velinheli, from Port Dinorwic, 100 tons slates, T. and C. Martin, Ltd.; per Anne, from Cowes, 170 tons cement, W. Chadwick.

Dec. 28, per Industry, from Bridgwater, 130 tons bricks, T. and C. Martin, Ltd.

Dec. 31, per City of Liverpool, from Hamburg, 89 barrels plaster, to order.

1907, Jan. 4, per Maggie Warrington, from Antwerp, 56 cases window glass, W. Martin and Co.; 148 do., do., W. Collins; 267 do., do., T. Dockrell, Son and Co., Ltd.; 60 do., do., Plate Glass Co.; 46 do., do., Hoyte and Son; 91 do., do., Brooks, Thomas and Co., Ltd.; 34 do., do., T. and C. Martin, Ltd.; 1 do., do., T. P. and R. Goodbody; 6 do., do., J. Hall and Sons; 10 do., do., to order; 118 steel joists, to order; 216 steel bars, to order; per Enid, from Port Dinorwic, 100 tons slates, J. Kelly and Son.

REVIEWS.

"Who's Who," 1907. Price 10s. net, limp leather. London: Adam and Charles Black, Soho-square.

The new issue of "Who's Who?" for 1907 contains over 21,000 biographies, and each biography has been submitted for personal revision, thereby greatly enhancing the value of the book. It is a biographical dictionary, which it would be difficult for any professional or commercial man to do without. We doubt if any other book of 2,000 pages has so much matter packed into it.

Who's Who Year Book, 1907. Price 1s. net. London: Adam and Charles Black, Soho-square. A companion volume to "Who's Who."

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CONTENTS.

PAGE.

Topical Touches	5
The Dangers of Sludge Heaps	6
Hudson on Building Contracts	10
Answers to Correspondents	14
New Catholic Hall at Monaghan	17
Imports	17
LEADING ARTICLE:— "Houses and Gardens"	18
COMMENTS:— The Work of the Institute of Architects	20
Building News	24
Proposed Chair of Architecture in Trinity College, Dublin	26
Engineering Items	29
Institute of Sanitary Engineers.—Sewage Problems	33
The Royal Institute of the Architects of Ireland	37
The Composition and Strength of Mortar	38
Our Southern Letter	38
Monaghan New Industrial School Buildings	39

"HOUSES AND GARDENS."*

"Houses and Gardens!" How much these words comprehend, and in what poor form the larger mass of humanity enjoys the one and the other. The term "house" conjures up the recollection of one beautiful house after another, the noble and incomparable houses of old England, from such structures as Broughton Castle and Compton Wynyates, the beautiful old chateaux of France, to the thousands of equally lovely old cottages in many an English village that still remain to-day nestling in their little gardens of gay flowers and trimly-kept hedges, that make so delightful a picture to charm the mind and soul of the architect or the painter. Gardens—gardens surrounding old cottages, bright with many an old-world flower, to Levens, with its superb formal Dutch garden, the "last word" of the artist-gardener of its day, quaint, and even comic, in its fancifulness. On the other side of the picture we have the horrible "outskirts" of our modern towns, houses as disfigure even such naturally beautiful suburbs as those of Dublin, and in houses like these the vast majority of the British and Irish people are born, live, and die, from the rich, self-made merchant, who builds or buys what he is pleased to term a "villa" or "detached or semi-detached residence," with its mechanically precise garden plot and shorn grass strip in front, the poor clerk, who lives in still more ugly dwellings in Ranelagh or Drumcondra, down to the working man, who is doomed to live in the modern so-called "model dwelling," prison-like and uninviting in every aspect. We purposely leave out of account for the time being those who dwell in the old houses in Dublin and similar cities, from the wealthy householder in Fitzwilliam Square to the humble room-keeper in wretched tenement. These houses were built long before our time, and with them we have presently

no immediate concern. Is it possible to improve, from an artistic point of view, the modern house of every class, such as is commonly built around our cities and towns? We exclude, of course, such houses, numerous enough in themselves, but small in number compared with the generality, designed by architects of taste, and such as may here and there be found. This is a question which for some years past has formed the subject of much discussion. The average builder will tell you the simplest attempt at beauty adds much to the cost, the artist-architect maintains the contrary, and the literature of the subject is voluminous. Amongst the latest contributions is a volume by Mr. M. H. Baillie Scott, architect, published by George Newnes, Limited, a firm which during late years has published several extremely good books on house and garden craft. The author sets out in his preface with an acknowledgment of the fact that the "garden book" has filled "a large space in the literature of the past few years, but that the realisation of ideals in modern villadom has not so far been fully dealt with"—an opinion, true or otherwise, according as the taste of the reader may vary. He tells us that "the art of building in modern times is not so much an Art as a disease." That "in the early days of the Victorian era it took the form of a 'pallid leprosy.' Nowadays it has become a scarlet fever of red brick." There is a good deal of truth, needless to say, in this; but the author's denunciations would acquire more title to respect if conceived in a better spirit of the efforts of those who, possibly less brilliantly, have striven to attain the self-same ideals as himself—in fact, his denunciations, general and overwhelming at times, descend almost to the quality of abuse. There are many English architects other than Mr. Baillie Scott who have designed and realised houses which the majority of cultured people will admit to be at least as beautiful as his own conceptions. Yet, we look in vain for a single word of acknowledgment in the entire of his paper. We need only mention such names as Norman Shaw, pioneer of our latter-day reversion to home-like ideals in the country house; Ernest George, Guy Dawber, "Bungalow" Briggs, H. T. Hare, Ernest Newton, E. L. Lutyens, and quite a host of others who have, one and all, been apostles of the beautiful in the country house, large and small, and who by their achievements have made England of to-day foremost in the design of the small house, and thereby relieved her from total mediocrity in architectural design. It is a pity that so ably and charmingly written a book should be so marred by what is, no doubt, perfectly unintentional selfishness—in fact, so noticeable is it that the ill-minded reader might suggest that the work savours of self-advertisement. Nevertheless, it is a fine book, and useful, used in the right way, and suggestive, too. Mr. Scott deals with the whole aspect of planning and realising the house and garden, and with the design of both, and he literally tears to pieces the vulgar and commonplace notions of the average British citizen in these matters. In the quite small house he points out that of necessity it must be small in cubic content and in floor area, and that in the desire to ape a larger and grander house in division and nomenclature of rooms, is lost the quality of suitability to use, and also comfort. The insane desire of the small clerk with meagre income to possess the same, or almost an equal, number of sittingrooms as the man with ten or twenty times his income is responsible for the sub-division of the modern suburban house into dining and drawingrooms, hall, "study," and so forth. The speculative builder, like a true business man, knows his market and caters for it. Incidentally he creates a thoroughly ugly, commonplace, and stereotyped house; but that, apparently, is neither here nor there. Mr. Scott pleads for a reduction in the number of sittingrooms, and the obliteration of the modern passage-hall, the space these mean and

* "Houses and Gardens," by M. H. Baillie Scott, M.C.M.V.I. London: Published by George Newnes, Ltd., Southampton street, Strand.

comfortless sub-divisions occupy being absorbed by the larger and better-arranged general living-room. He pushes his conclusions rather far, however. In his hints entitled "Making the Best of It," he gives a couple of suggestions which the average tenant might, with the concurrence of an indulgent landlord, carry into effect without much structural charge, and at small cost. He assumes the average plan of the house, with halldoor and passage-hall to one side; on the other the usual two parlours, the front looking towards the road; the back room darkened by protruding "return." "Take away the partition wall between hall and front parlour, form an entrance porch, and throw into one decent room the two small parlours, and even, as in the second suggestion, throw in the back hall containing the staircase, and you at once get a much better and more artistic and sensible arrangement." These are not Mr. Scott's words, but the substance thereof. Now, the writer has the misfortune, for his sins, to live in such a small suburban house, and he ventures to say the remedy is as bad as, or worse than, the disease. Take the front parlour—used as a study—throw it into the hall, and the householder is at the mercy of every beggar, every tradesman's porter, or too convivial friend that knocks, perhaps when he is engaged burning the evening oil of work; the house becomes in the winter cold and drafty, and the change adds to the difficulty of excluding the smells of cooking, a troublesome matter in most small houses. In fact, the change would take from rather than add to the comfort of the house, and certainly savour of ostentatious aping of a country house hall. Mr. Scott tells us a good deal about the planning of a better type of house, and very useful some of his words are.

All his suggestions are, however, based upon a somewhat aggressively modern type of design. Particularly true is this of his schemes of decoration, and certain severe critics might dub some of them as affectedly crude. The water-colour sketches, charmingly reproduced, are, however, all beautiful—in fact, it is not possible to speak too highly of the illustrations, delightfully reproduced specimens of the author's own handiwork. In particular, we cannot refrain from singling out an exquisite little water-colour entitled "View of Pergola." Here we have a clever suggestion for the beautiful treatment of a not necessarily big garden, rendered in exquisite water-colour, a charming little touch being the effect of a lantern reflected on the little artificial pool of water, without which, says Mr. Scott, no garden is complete. Probably the best chapter in the whole book is that on "Cottages," standing well out from the heap of well-intentioned rubbish written on that sore subject of late, and one or two plans, apparently capable, with a little modification, of realisation for a sum such as might properly be spent upon a labouring man's dwelling. We cannot say so much for the reproduction of the author's "Elmwood Cottages, Garden City," which pair have the bulk of a very respectable country house, are full of costly nooks, breaks, and projections, and, of course, incapable of being built for anything like the proverbial £150, which is the modern crux. Mr. Scott gracefully slides away from this by saying that long ago a labouring man would have "the benefit of the co-operation, in building, of friends and neighbours, each of whom would contribute their share of labour—all imbued with the primary idea of making a comely dwelling. This would be the first consideration, and, however important the financial side of the question, it would still be secondary." What historical warrant Mr. Scott has for this, in more than one sense, gratuitous assumption, we know not. The cottage he illustrates facing page 105 is, on the contrary, one of the most sensible suggestions for an economical two-storey cottage we have seen for some time past. The elevations, with casement windows and half timber work, are, however, hardly suited for exposed situations, still they are suggestive.

Mr. Scott then goes on to illustrate and describe

many charming houses, all of his own design, and shown by exquisite little water-colours. In fact, the chief charm of this book is the collection of beautiful water-colours; and if in the earlier pages one feels inclined to criticise the text and tone of the book somewhat severely, as one goes on one is charmed by the work, and gradually, towards the end, becomes fascinated by the beautiful work and delightful illustrations. It is evident that Mr. Scott has been blessed with artistic or pliant clients.

To the educated architect of receptive mind, and the cultured amateur, this book will be refreshing, and incentive to honest effort on the first, and encourage the latter when he builds, and is fortunate enough to be guided by an artistic and common-sense architect, to let him guide. To the untrained mind of the enthusiastic and callow architectural pupil, this book would, we fear, be, as the modern erotic novel and sex problem play is to the "young person," dangerous and demoralising, destructive of that restraint and regard for the ancient and long-tried orders and canons of architecture, upon which foundation, after all, all good architecture rests.

COMMENTS.

THE WORK OF THE INSTITUTE OF ARCHITECTS.

Generally speaking, as may be gleaned from the brief abstract of the President's address and the annual report, which we publish elsewhere, the work of the Institute during the past year has been useful.

Architects' Fees Under the Labourers Acts.

One or two matters have arisen which give cause for regret. In our last issue we published a letter from Mr. Webb, the hon. secretary of the Institute, in which he corrects us for laying a large share of the blame for the reduction of architects' fees in connection with the new Labourers Acts on the Institute, because of first suggesting to the Local Government Board the distinctly ambiguous range of fees—"2½ to 5 per cent." It reads like the statement of the somewhat disreputable, under-selling architect who includes the expression 5 in his quotation, not so much in the hope of getting it as of "saving his face," and effecting a pose of respectability that is not his. Mr. Webb's letter seems, if anything, to put the Institute in a worse position than before. Logically, it means that "under circumstances" any architect may reduce his fee to 2½ per cent.—That is what it means, if it has any meaning at all, and of the circumstances, he himself alone must be the judge. As to justification, no general demand exists compelling architects to work for less than 5 per cent. The public is simply too indifferent to bother its head on the subject, and pays the standard 5 per cent. freely enough. We say this as the result of a good many years' experience, and some special opportunities of hearing of current matters, and we may add, without any fear of contradiction, that where lesser fees prevail (that is, outside Belfast and Derry) they are reduced in ninety-nine cases out of a hundred, not on the initiative of the employer, but of the architect, with a desire to undersell his professional brethren.

In the particular instance of the Labourers Acts we recognise that, of course, no such unworthy motives ever had anything to say to the question, as, in spite of what Mr. Holloway, President of the A.A.I., says, we still adhere enthusiastically to our belief that the vast majority of architects in Dublin and the South work honourably, and never attempt to undersell another architect. It is perfectly evident that the Council erred through want of knowledge of the details of the manifold duties beyond mere designing required of

an architect for such schemes. On this subject the annual report says:—

During the year the Labourers (Ireland) Act, 1906, has passed into law. The Council took active steps to advocate the advisability of employing properly qualified architects to provide plans and to superintend the execution of contracts on behalf of Rural Councils undertaking building schemes. As the result of letters addressed by the Council to the Chief Secretary for Ireland, and the Irish Members of Parliament, a clause was introduced into the Bill providing that "Architects employed under the Act shall satisfy the Local Government Board that they have sufficient knowledge and experience for such employment."

The Council, in the month of September, had under consideration the draft regulations of the Local Government Board. The Council agreed to the schedule of qualifications, with some slight amendments, but, in reference to the clause regulating the fees payable to architects, the Council wrote as follows:—

"That payment under paragraph (c) be by a sliding scale with a maximum of 5 per cent., and a minimum of $2\frac{1}{2}$ per cent., depending on circumstances, with expenses in addition."

Unfortunately the Local Government Board did not see its way to adopt the suggestion of the Council, but has fixed the maximum fee at $2\frac{1}{2}$ per cent., to include all services except marking plots on maps. The Council would consider such a fee, on a small scheme, to be entirely inadequate.

Seemingly the Council recognises $2\frac{1}{2}$ per cent. to be an inadequate fee on "a small scheme." We may say that that on no scheme, large or small, does it pay a competent man enough for his services. Take a scheme costing, say, £8,000—and that is a fairly large one. Of that, probably not £5,000 will be expended on building, etc., probably 30 to 40 cottages, say, in architects' fees, and adding a marking fee of 10s. per plot—£140, all told, including all travelling expenses! Compare that with a church or town hall costing the same amount. The fees will be at least £250, plus travelling expenses and probably other fees, and the responsibility is not one-tenth!

Competition for Labourers' Cottages.

Speaking of the recently-instituted competition for a design for labourers' cottages, the Council very properly comment upon the regulation, which says:—

"Every cottage to be erected by a Council shall be built in accordance with some one of the plans issued for the purpose by the Board unless the Board otherwise consent." Had these plans been of the character of a schedule of areas to be issued to the Councils when applying for a Local Government loan, which would, when the works were carried out, enable the Local Government Board Inspectors to judge whether the conditions as regards floor space, cubic contents, area of windows, etc., had been duly observed, no valid objection to their preparation could have been urged. Indeed the existence of such outline plans would have had the effect of compelling Rural Councils to employ a qualified architect to design and carry out their buildings.

It will be clearly seen that the distribution of complete working drawings broadcast throughout the country will inflict a serious injury on the qualified country architect, who would otherwise, probably, be employed to design and superintend schemes undertaken in his district.

The criticism is a very justifiable one.

"Ulster Home Rule."

The secession of the young and growing Ulster Society of Architects from affiliation to the parent body, and subsequent recourse to the British Institute, is most lamentable, and damaging to architects in general in Ireland. So far as a calm and impartial consideration of both sides of the case gives us any means of judging, we believe the difference to be due mainly to mutual misunderstanding, and it is even now not too late to suggest a conference. The annoyance of the Ulster Society seems to rest mainly on personal grounds, and we cannot help thinking they acted rather hastily. We, in common with all Southern architects, hold, and have expressed, our opinion on the subject of low fees, and whether they are justifiable or not; but the less the Institute says officially on the subject the better.

The Council takes a strong view of the secession,

and the President observes thereon in his address:—

He referred to the secession of the Ulster Society of Architects, which he deeply deplored. In spite of the explanations which had been given by the Ulster Society for their extraordinary action, he did not consider a single valid reason has been advanced to justify it. The Ulster Society, he continued, having applied for direct affiliation with the British Institute, we deemed it our duty to oppose their application, and I was accordingly deputed to attend the next Council meeting in London and submit our views of the question at issue before it. This I did early in November, and obtained an attentive hearing, but the Council preferred to wait until they should receive a similar deputation from the Ulster Society before deciding upon it. The question is, therefore, still *sub judice*.

Registration.

The President also referred to the important question of architects' registration, and how the matter now stands:—

As foreshadowed in Mr. John Belcher's address last year, he said a Sub-Committee was appointed to examine impartially into the whole question. To quote Mr. Belcher's words—"This Committee, which is composed of men holding diverse—even opposite—views, is to receive and consider the evidence of those, whether members of the Institute or not, who may be either in favour of, or opposed to, compulsory registration, or who have suggestions of any kind which may help the Committee to formulate a scheme which they can recommend. The work of the Committee need not occupy any great length of time; but what is done must be thorough, and we must arrive at a final solution of the question." From the valuable evidence obtained, the Sub-Committee framed a report to the Registration Committee, which has been unanimously adopted. The recommendations embodied in this report, so far as I understand them, are as follows:—That as it would be very difficult to pass a Registration Bill with penal clauses attached through Parliament, the views of those architects who are in favour of registration can be met by applying to Parliament for a legal diploma of membership of the British Institute, it being made compulsory that after a fixed date, some years hence, every architect before receiving this diploma must have passed through a definite course of architectural education in a recognised school. The Sub-Committee further recommends that at present the Institute should confine itself to attempting to obtain Parliamentary recognition for its membership, an attempt which, we believe, would meet with very general support, that it would encourage education and raise the status of architects, and, at the same time, avoid the temporary necessity of granting a statutory title to unqualified men. There are further recommendations of minor importance which need not be considered now, but the really vital change proposed is that if these propositions are carried out the British Institute itself will become the supreme governing authority in all architectural matters, instead of a mixed body containing many non-architects, as would have been the case had the Registration Bill become law.

The Proposed New Contract.

The President observed:—

that the revised conditions of contract which were finally adopted a year ago have been almost in abeyance ever since. I have heard of their having been used in one or two contracts lately, but not nearly to the extent we hoped would have been the case. We believe this proceeds from the hostility with which they are regarded by the Master Builders' Association. We greatly regret this, and we consider their contention would be more reasonable and more likely to be upheld by public opinion if they could show where the new conditions are unfair or oppressive to them; but beyond vague expressions that they are lengthy and difficult to understand, I have heard nothing that can be seriously alleged against them. I can state, from my own personal knowledge, that when they were in preparation our Committee were scrupulously careful to insert nothing that, in their opinion, could be taken exception to or considered inequitable by either party, and also redress any grievance or vagueness of expression which could fairly be shown to exist in the older series. I am in hopes, therefore, that when the builders have studied them carefully for themselves they will come to recognise their merits and will eventually adopt them. If they are longer than those in use formerly, it arises solely from the endeavour to render the meaning of each sentence perfectly clear, so that possibilities of misunderstandings arising may be minimised. I trust, therefore, that this *non-possumus* attitude on the part of our friends the builders may give place to a more reasonable one, so that the difficulty which has arisen may be removed.



Belfast.—A large building is at present in course of erection next to the Grand Opera House, Belfast, which it is intended to turn into a Grand Hippodrome, and it is expected it will be opened during the summer.

Borrisokane.—In the Probate Court, London, on Wednesday, an application for probate of the will of the late Miss Clarke, who left £5,000 for the erection of a town hall in Borrisokane, was granted. Mr. John O'Connor, K.C., M.P., was selected to represent the people of Borrisokane during the proceedings. The will was contested by some of the deceased's relatives.

Co. Wicklow.—Mr. Frazer, contractor, Bray, is at present occupied with the following work: The erection of a villa on King Edward-road, designed by Mr. T. M. Deane; new premises at Kingstown for Messrs. N. Connolly and R. Cooke, according to the respective designs and specifications of Messrs. Kaye Parry and Ross and G. T. Moore; seven new houses in Bray (his own property); the new branch of the Northern Bank, Quinsboro'-road; and new premises for Mr. H. J. O'Carroll, Main-street. All the foregoing were designed by Mr. J. C. Wilmot, Upper Merrion-street, Dublin; also a new house on King Edward-road, according to the designs of Mr. O'Hanlon. Mr. J. Plunkett, Bray, is altering and renovating two houses on the Meath-road.

Dublin.—A very fine stained-glass window has just been dedicated in St. Paul's Church by his Grace the Archbishop of Dublin, as a memorial to the late Dr. Rudolph Burnes, who was for many years an office-bearer in the congregation, and was well known for his consistent Christian life. It represents the barbarians of the island of Melita entertaining St. Paul after his shipwreck (Acts xviii.), and was executed by Messrs. Mayer, of Munich and London, from whose studios also comes the grand east window in the same church.

Glencullen.—Some months ago the committee in charge of the Glencullen Library succeeded in obtaining the promise of a grant of £1,200 from Mr. Andrew Carnegie, the well-known millionaire philanthropist, for the erection of two public free libraries. The preliminary arrangements connected with same have so far progressed that Messrs. Doolin, Butler, and Donnelly have the plans for the libraries, one of which is to be erected in Glencullen, and the other in Sandymount, practically complete; but they must first receive the sanction of the generous donor before buildings operations are begun. ("Wicklow People.")

Kilkerley.—Tenders were received for new chancel roof and sundry repairs to Kilkerley Church, for the Very Rev. P. Canon Clarke, P.P., in accordance with drawings and specifications which have been prepared by Mr. John F. McGahon, architect, Roden-place, Dundalk.

Kells.—Additions and alterations are about to be initiated at the Parochial House, Kilbeg, Kells, Co. Meath, for the Rev. J. Clavin, P.P. Plans and specifications have been prepared by Mr. T. F. M'Namara, 50 Dawson-street, Dublin, and tenders are invited up to 19th January, addressed to Rev. J. Clavin.

Kingstown.—The destructor, which has been in course of erection at Kingstown for some weeks, is to be opened on the 14th. The preliminary fires have been lighted, and the flues and the chimney are being dried in preparation for the commencement of the work of destroying the town refuse by fire on the date mentioned. The furnaces have been put up by Messrs. Horsfall, of Leeds. They are capable of destroying about twice the quantity of refuse which is collected daily in the district. Advantage will be taken of its large capacity at the commencement to work the destroyer only during the daytime. Afterwards, if larger quantities come to the furnaces, men will be engaged for night work. The chimney, a novel design for Ireland, has been put up by the Custodis Co., under their special patents. The structure is the first of its kind in this country. It may be of interest to remark that the principal peculiarities of the

chimney are the carrying of the firebrick core on corbels, which are fixed at intervals of 20 feet, and the specially cast bricks which form the outer covering. The division of the firebrick core into sections reduce very appreciably the expansion of the core under the severe strains due to the great heat of the escaping gases. The special bricks permit of the building being put up of less sectional area than would be necessary under any other system of construction. The furnaces are enclosed in a suitable building, which has been constructed by Messrs. A. Hull and Co. Messrs. Helliwell and Co.'s patent glazing is used on the roof. There is a convenient inclined plane from the level of the municipal yard to the tipping floor, and a side-entrance off Callaghan's-lane, in the direction of George's-street, has also been provided.

Additions and alterations are at present taking place in Ross's Hotel, Kingstown, according to the designs and specifications of Mr. Edwin Bradbury, M.R.I.A.I., 7 Nassau-street, Dublin. Mr. Wm. Beckett has been entrusted with the work, which consists of extensions to the coffee room and smoke room, new entrance hall, lounge, serving room, etc.

Limerick.—A special meeting of the Limerick No. 2 District Council was held on Wednesday, 19th ult., to consider the fixing of a scale of fees for the engineer and solicitor under the new Labourers' Act. The following resolution was finally agreed to:—"That Mr. O'Malley be appointed engineer to the Limerick No. 2 District Council under the Labourers' Act at the following scale of fees:—(a) For marking plots at 7s. 6d. per plot included in the scheme, such payment not to include the costs of the maps; (b) for all other work at 2½ per cent. upon the cost of the work executed in accordance with contracts for the execution of the work. That Mr. Ryan be appointed solicitor at the remuneration laid down by the Local Government Board." A resolution in confidence of Mr. O'Malley, B.E.; Mr. Ryan, solicitor; and Mr. H. J. Guinane, clerk; and recording their valuable services to the Council was unanimously passed before the meeting adjourned.

Monaghan.—The site for the new post office was decided on some time ago, but, owing to difficulties in connection with its acquisition, the contract for its purchase was not signed until October last. Working drawings are now being prepared with the view of inviting tenders, but until matters have progressed further it will not be possible to enter into a contract for building.

New Ross.—Some correspondence with regard to a site for the proposed new technical school being laid before a meeting of the New Ross Committee, Mr. Cullen thought it would be a great mistake to depart from the Town Hall site. The secretary reminded the meeting that the Department had refused to sanction as permanent the premises offered. The objection was based on the idea of want of sufficient accommodation. Here Mr. Cullen threw a new complexion on affairs by stating that very probably Dr. Kavanagh would be prepared to lease the whole premises out to the street. He (Mr. Cullen) saw no difficulty, as far as the Town Hall was concerned, in building technical school premises out to the street. The meeting welcomed Mr. Cullen's suggestion, and the secretary was directed to communicate with the Very Rev. Canon Kavanagh for an offer of extended premises with plan.

Navan.—It is rumoured throughout Navan that the Post Office authorities, who have been so long looking out for a suitable site for the erection of a new Post Office for Navan, have entered into negotiations for the purchase of the premises in Market Square, lately occupied by the "Irish Peasant" Printing Works.

Strabane.—Tenders were received by the Rural District Council No. 1 for the construction of a section of Newtown Stewart sewage scheme.

Tempo (Co. Fermanagh).—Tenders were received for the erection of a tower and spire to the Catholic Church, Tempo, Co. Fermanagh, for the Rev. P. S. O'Neill, P.P. Mr. V. Brennan, C.E., Belfast Bank Chambers, is the architect.

Templepatrick.—Alterations and additions are about to be made at the Manse, Lylehill, Templepatrick, according to the plans and specification of Mr. W. D. R. Taggart, Wellington-place, Belfast. Tenders close on 12th inst.

Urlingford.—The Board of Guardians of this Union will on the 17th inst., receive tenders for supplying and erecting a boiler for the fever hospital or a movable boiler, whichever may be decided on by the Board.

Waterford.—The tender of Mr. P. Costen, builder, of this city, for the erection of a boarding-house at Rosslare, for the Great Southern and Western Railway Company, has been accepted at £1,250. We understand the next lowest tender was that of Mr. G. Nolan, also of this city, at £1,200.

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PROPOSED CHAIR OF ARCHITECTURE IN TRINITY COLLEGE, DUBLIN.

The following remarks occur in the annual report of the Royal Institute of the Architects of Ireland :—

The Architectural Association of Ireland, feeling that the appointment of the Royal Commission on Trinity College and the University of Dublin offered an occasion for putting forward, in the interests of Architectural education, a claim for the establishment of a Chair of Architecture in the University, approached the Commissioners with a view to obtaining permission to present a memorial on the subject. Permission having been granted, the Association decided that the proper body to frame and present such a memorial was the Institute, and, with this end in view, approached the Council. The Council, thereupon, took the matter up, and, in consequence, the following letter was addressed to the Commissioners and forwarded in the month of September to their Secretary :—

PROPOSED CHAIR OF ARCHITECTURE.

To the Members of the Royal Commission on Trinity College, Dublin, and the University of Dublin.

September 3rd, 1906.

MY LORD AND GENTLEMEN,—The Committee of the Architectural Association of Ireland, having informed the Council of the Royal Institute of the Architects of Ireland that they had obtained your permission to present a report dealing with the above subject, the Council of the Institute decided that, as the representative body of the profession in Ireland, it were best that such a report should come from the Institute. I, therefore, beg to submit a brief statement of the present condition of Architectural Education in Ireland.

Previous to 1896 no educational facilities for the architectural student existed beyond the ordinary system of articulated pupilage to a practising architect.

In that year, however, the Architectural Association of Ireland was formed by the junior practising architects and students for their mutual benefit and in order to supply the need of further educational facilities which they felt very keenly.

The work of the Association includes such subjects as the History of Architecture, Building Design and Construction, together with lectures on architectural and kindred subjects. Its teaching have proved of great value to the students who have availed themselves of it, but it has been hampered by the following grave drawbacks, viz :—

1. Lack of authority to enforce discipline.
2. Want of an objective for study, such as an Irish degree or diploma, which would be universally acknowledged.
3. The financial difficulty of providing properly paid teachers who could devote most of their time to architectural instruction.
4. The need of physical and chemical laboratories.

My Council consider that the taking of the Arts Course by intending students of architecture should be rendered obligatory, as they believe a sound and liberal general education such as would be imparted thereby to be of the utmost importance to the profession. At the same time they feel very strongly that a course of work in the office of a practising architect is absolutely essential to the proper equipment of any student who aspires to become a true architect.

If my Council might venture to offer a suggestion it would be that speaking generally the course of study for the School of Architecture would naturally follow the lines of that adopted by students for the degree of Engineering, with such modifications as the difference between the two professions would render desirable.—I have the honour to be, My Lord and Gentlemen, your obedient and faithful servant,

(Signed) R. CAULFIELD ORPEN, Hon. Sec.

THE SEPTIC TANK IN WINTER.

The suggestion has been advanced at times that the septic tank process of sewage purification is one that is not altogether adaptable to countries in which severe climatic conditions are prevalent. A few notes, therefore, on the subject in a paper presented to the Canadian Society of Civil Engineers by Mr. W. R. Butler, M.Inst.C.E., are of no little interest, as showing under what adverse conditions this process may still be attended with success. Mr. Butler reports on an inspection he made at a plant at Davenport, Iowa. He says: "The winter had been phenomenally severe, and at Davenport, at the time of the visit, ice was reported upon adjacent parts of the Mississippi River exceeding 30 in. in thickness." The mean temperature of this place for the two months of January and February was not as high as 17 degs. F., the mean of minimum temperatures being about 9 degs. F. Under these conditions it was found that the heat of the sewage itself was sufficient to ensure no interruption of the automatic alternate valve-gear, which, under such conditions, is placed so as to receive the effect of heat radiating from the sewage.

It was also found that any slight coating of ice forming on the filter-beds was immediately melted on the next discharge of sewage. The filtrate discharged was pronounced by Mr. Butler to be of as satisfactory a nature as that from plants in more favourable climates. The author also states that in lieu of distributing the sewage by means of open ducts and channels, it is found advisable in cold climates to distribute it by porous pipes laid with open joints, just below the surface of the bed. It is also found of advantage to make small furrows or undulations in the surface of the bed, so that the ice forming shall be broken up by settling under its own weight.—"Civil Engineering."

AUTOMATIC FLOOD TRAP.

Murray's Patent.

This gully trap, particulars of which we have received, is designed to prevent a back-flush of water in the drains, thereby preventing overflowing from the gully, and consequent flooding of cellars, basement, &c. The principle underlying the invention is that of a ball trap, which the following particulars will make clear. The gully near its inlet, and immediately below the usual grid, is provided with three rings, two of which are made of metal and one of indiarubber. The last-named ring lies between the other two, and its diameter is slightly smaller than theirs. All three rings are fastened together, and bolted to the gully. In the gully and below the rings, floats a ball the diameter of which is larger than the opening in the rubber ring. It is evident that when the level of water in the gully is normal, the ball is clear of the annular rubber valve, and water is free to flow into the trap and away to the drains. When, however, from any cause, the water in the drains rises so as to flow back and fill the gully, the ball float rises with the water until it presses tightly against the rubber ring, thereby automatically sealing the gully, and preventing overflow. When the water subsides, the ball, of course, falls, leaving the trap open as usual. Prices and full particulars can be had from the patentees and sole makers, Messrs. Murray and Co., 9a Lune-street, Preston.

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ENGINEERING SECTION.

ITEMS.

The year 1906 has passed away, and we are all turning our thoughts and hopes to the New Year, anxiously wondering what good or evil it may contain for us. In England the old year closed during a period of industrial activity and prosperity which has not been approached for a quarter of a century; the export and import returns denote an ever-increasing trade, factories long shut down are re-opening, mines well-nigh forgotten are being re-worked, and everything points to the fact that Great Britain will fully share in the trade revival which just now appears to be almost universal. Unfortunately, in Ireland the same happy prospect is not yet in view. The demands on factories elsewhere, which are largely exceeding the output, and the consequent rise in the price of manufactured articles, taken together with the enormously increased price of metals and other materials, cannot but adversely affect the architectural and engineering professions and allied trades, for in this country we are chiefly consumers. Yet, having had our grumble, we can readily confess that during 1906 the results of the "Sinn Fein" policy, in its true sense, have become more strongly marked. Attempts have been made to increase our Continental trade, new stone quarries have been opened and the old ones more efficiently worked, mining has received an impetus both in the north and the south, especially the latter, and factories have been started in various trades. It may be that many of these new undertakings are doomed to failure, but even the least practical of the schemes is indicative of that self-reliant spirit which during the new century is gradually permeating Ireland and Irishmen. In sincere admiration of that spirit, which in our humble way we endeavour to foster in these columns, we extend to those who, professionally and commercially, are forwarding the interests of their country, our hearty wishes for a *happy and prosperous New Year*, and, with one eye on the railway returns and the other on the International Exhibition, we can almost venture a prophecy that our wishes will be verified.

* * * *

The open competition, instituted by the Local Government Board for the best design for a labourer's cottage to cost £130, has resulted in a perfect avalanche of drawings descending on the officials at the Custom House. It is understood that there are close upon four hundred competitors, many of whom have submitted from three to five different designs, the various schemes totalling over a thousand. The task of adjudication will be no sinecure, as the limited cost naturally hinders originality, and the majority of the designs can differ but in the smallest details. It will be the duty of the assessor, whoever he may be, to examine the plans minutely before placing the three premeditated designs, as his award will assuredly be subjected to severe criticism. All who have the comfort of the agricultural labourer at heart will earnestly hope that, from this competition, there will be evolved a plain, substantial, and comfortable home for him, one which, while hygienically suitable, will, in its simplicity, command admiration. But if the winning design is to be adopted by rural bodies, as a basis for the labourers' dwellings in the areas under their control, it will be essential to see that the buildings can actually be erected for the cost estimated by the competing architect or engineer. It will be remembered that the cottages erected in 1905 at Letchworth proved, in many cases, most deceptive as to cost. One visitor to that exhibition, being taken with the design of a cottage, catalogued to cost £150, offered to give an order to the contractor to build two similar cottages on his own land in the vicinity, but was immediately informed that repetitions would cost over £200 each. This was but one instance of many. We consider, therefore, that the Local Government Board should exercise the greatest care that the designs chosen can be erected for the sum mentioned in the conditions, as the amount, doubtless, considerably handicapped the competitors.

* * * *

The result of the competition will be anxiously awaited, and it is to be hoped there will be no unnecessary delay in publishing the awards. We would further suggest that the pulic, or at all events, members of architectural and engineering societies, should be permitted to view the

drawings. For the present it is not known for what particular purpose the competition was instituted, but if the winning design is to be distributed broadcast through the country, we may expect that the greatest indignation will be aroused amongst practising architects and engineers.

* * * *

The opening of the Great Northern, Piccadilly, and Brompton Railway, last December, has added a very important section to the numerous electric underground railways in London, without which it would now be impossible to speedily traverse the metropolis. The new line is about nine miles long, and connects the West of London at Hammersmith with the North of London at Finsbury Park, between which points there are nineteen other stations about one-third of a mile apart. The new railway is constructed practically on the same lines as the "Bakerloo," the running tubes being 11 ft. 8 in. diameter, and the station tubes 21 ft. 6 in. diameter. These are of cast-iron segments, of the pattern with which those who know their London are now quite familiar, and the borings were executed by means of the airlock and Greathead shield. The tunnels vary in depth from 20 feet below street level at Finsbury Park, to 123 feet at Piccadilly Circus. As in the "Bakerloo" line, the stations are quite a feature, being carried out in reddish brown glazed bricks above street level; the underground stations are lined with variously coloured glazed tiles, arranged in such patterns as to render them easily distinguishable to the passenger. There is one innovation which will attract attention and afford a nine days' wonder to the London citizen—that is, the moving spiral conveyor, at Holloway Station, which is being experimentally tried in place of the usual lift. The conveyor consists of an endless band, moving continuously at the rate of 100 feet per minute, and is formed of teak boards supported by steel chains, and is provided with a flexible hand-rail. There is an inner, as well as an outer spiral, which travel in opposite directions; the passenger merely steps on to the conveyor at any moment, and when he reaches the surface or the station, steps off. This apparatus was constructed by the Reno Electric Stairways and Conveyors, Ltd., and it is claimed to have a much greater capacity than a lift.

* * * *

The signalling is on the electro-pneumatic principle, and, except where points occur, is entirely automatic. The rolling stock includes 72 motor cars, each equipped with two motors, and 146 trailers. Of this number, it is regrettable to learn that only two were supplied by British makers, the remainder being manufactured on the Continent. The cars are of steel construction, except in the case of the panelling, which is, however, of non-inflammable material. The immediate solution of London's traffic congestion undoubtedly lies to a large extent with these electric railways, and further extensions are about to be put in hand, in order to link the systems. A line from Charing Cross to Hampstead is now nearing completion, and the City and South London Railway will shortly extend its line from the Angel to Euston. As the trains travel at an average speed of 15 miles per hour, and the tracks can be laid practically in a direct line from point to point, the wonderful economy of time in travel obtained over ordinary street traffic is obvious. The competition of the electric railways is already most keenly felt by the cab and omnibus companies, and, if the latter are to hold their own, the substitution of properly-designed motors for horse-drawn vehicles is an absolute necessity.

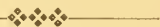
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The past year will be remembered as one of appalling railway disasters, and its unenviable reputation was sustained at its close by the catastrophe at Arbroath, in which so many passengers lost their lives. Apparently, the primary cause was due to the obscuring of the signals by a violent snow-storm, but as the engine-driver is under arrest, and the whole case is *sub judice*, we do not propose to comment on those facts which are already public property. The number of accidents which have recently occurred undoubtedly indicates that increased traffic and augmented speed have introduced a condition of affairs with which present railway regulations are unable to properly cope, and, that as matters now stand, the traveller is not sufficiently protected. The block system and semaphore signalling have proved ample safeguards in the past, but

it behoves the leading companies to devise more efficient devices if the roll of British disasters is not to be seriously extended. The construction of carriages with non-inflammable material, the lighting by electricity instead of by compressed explosive gas or oil, underground telegraph wires to prevent isolation of signal cabins during snow-storms, and an improved method of automatic signalling, together with an amelioration of the conditions under which railway servants labour, are all matters requiring urgent and careful consideration. It will be easier for the companies to carry out the necessary reforms on their own initiative, than to wait until the force of public opinion compels them to do so. State purchase is not entirely desirable, but may eventually become the lesser of two evils.

* * * *

The *Engineering News* recently commented on the failures of reinforced concrete buildings in America, and expresses the opinion that "this material may be dangerous, for one or more of the following reasons: because safe methods of design have not yet been developed; because the commercially obtainable materials of construction are subject to unknown variations, which may produce fatal weakness; or because the quality of labour employed is not high enough to ensure the safe construction of the design, even though design and material be satisfactory. But one reservation is made: if an independent engineer be employed either to work out the design, or to prescribe specifications and verify the design by them, and if, further, an independent engineer be placed in charge of the construction work, to see that it is properly done, then reinforced concrete construction is as safe as other types. Under all other circumstances, we believe, it involves so much risk that it must be characterised as dangerous." This candid expression of opinion is interesting, coming from what may be called the home of reinforced concrete. The points made are those which we have from time to time laid before our readers. The "independent" engineer or architect is essential, especially as the material comes into more common use, and excellent work by the contractor, for more or less advertising purposes, is no longer a *sine qua non*. But with present knowledge, experience, and data, independent engineers, fully conversant with the properties of reinforced concrete, are few and far between, and unless the architectural and engineering professions rapidly awake to the present condition of affairs, it will be found that clients will be directly approached by interested contractors, and the architect's or engineer's functions abrogated. From the point of view of public safety, such a result might be deplorable.



THE INSTITUTION OF CIVIL ENGINEERS.

At the ordinary meeting on Tuesday, the 8th January, Sir Alexander Kennedy, LL.D., F.R.S., President, in the chair, the paper read was "The Simplon Tunnel," by Francis Fox, M.Inst.C.E. The following is an abstract of the paper:—

After touching upon the history of the Simplon Pass over the Alps, and the roadway built by Napoleon in the 4 years preceding 1805, the paper describes the present tunnel, which was adopted out of about thirty different proposals.

The chief feature of this route is its small altitude (2,313 feet) above sea-level, which compares favourably with other Alpine tunnels. In the tunnel the gradients were decided primarily by assuming that the progress of excavation would be the same from both ends, and secondly by the least fall capable of giving efficient drainage; thus a minimum of 1 in 500 was adopted for the north side, and 1 in 143 for the south side, the two gradients being joined by a vertical curve in the centre.

The work provides for two parallel single line-of-way tunnels, 55.8 feet apart, connected by oblique cross passages; the reasons for this arrangement were:—(1) Ventilation during construction; (2) greatly reduced pressure on the tunnel-lining; (3) increased facilities of transport and drainage during construction; (4) increased facility in subsequent maintenance during traffic; (5) safety in working traffic.

One tunnel only has been completed to the full section, the second gallery being left at present as a heading.

The complete tunnel measures 16 feet 5 inches in width and 18 feet $\frac{1}{2}$ inch in height above rail-level. It is lined throughout with masonry. Refuges and chambers are built into the cross passages for use by the maintenance-gangs.

In December, 1890, Messrs. Sulzer, of Winterthur, and Messrs. Brandt, Brandau and Co., of Hamburg, presented the plans, and in 1895 the Swiss and Italian Governments ratified a convention for the construction of the tunnel. The cost was estimated at £3,040,400, towards which the two Governments contributed; the period of construction was to be 5 $\frac{3}{4}$ years. The actual cost is about £3,200,000 and the period taken 6 $\frac{3}{4}$ years.

On the death of Mr. Brandt, Colonel Locher-Freuler, of Zurich, joined the firm of contractors. Dr. Max Rosenmund, of Zürich, carried out the triangulation, and was responsible for the setting out of the tunnel.

In August, 1898, the excavation was commenced with the pick, pending the installation of hydraulic power; at Brigue the Brandt hydraulic drills began work on the 22nd November, 1898; but at Iselle, owing to the necessity of transporting all plant over twelve miles of steep roadway, drilling was not started till the 18th of February of the following year. The two ends were worked on the same general plan, each independently; about 2,000 h.p. was developed both from the Rhone and from the Diveria, driving high-pressure hydraulic pumps.

A full description of the Brandt hydraulic rotary drill and its capabilities is alluded to in the paper, with methods of blasting. Ventilation was effected by fans; the air, forced into the mouth of one of the galleries, travelled by the parallel gallery, the latter being used as means of exit and entry for the trains of material, etc.

The whole works were kept remarkably fresh. To supply the men working in the faces, air was taken from near the last cross cut, cooled by means of a fine jet of water and driven through light iron pipes to any desired point. Later, on meeting the hot springs, the air was cooled at various points in the finished heading by means of jets of cold water spray. Though in the St. Gothard a temperature of 93 deg. Fahr. proved in many cases insupportable, yet in the Simplon, owing to the excellent ventilation, a temperature of 133 deg. Fahr. was not unbearable. Diagrams were given in the paper showing the relation of the temperature in the tunnel to the height of mountain above it.

On leaving the tunnel the workmen entered a large warmed building fitted with dressing rooms, and with hot and cold douche baths. Here they changed into warm dry clothing, and their mining garments were dried or washed ready for the next day.

The work of excavation progressed rapidly at both ends, an advance of 18 feet per day being frequently recorded. On the Swiss side the rock encountered was chiefly gneiss and micaceous schist. On the Italian side, after traversing about 2 $\frac{3}{4}$ miles of hard Antigorio gneiss, the thermometers in the rock showed a diminishing temperature, and suddenly a cold underground river of 12,000 gallons per minute burst in. Owing to the treacherous nature of the rock at this point, only heavy joists buried in quick-setting concrete were able to hold open a heading of sufficient area to give access by small hand wagons to the drills beyond. This short length entailed a delay of 6 months.

After traversing another 2 $\frac{1}{4}$ miles, hot springs with a maximum flow of 4,330 gallons per minute and a temperature of 45.4 deg. C. were encountered, but by taking the water of the cold spring and throwing it into the crevices of the hot, the heading was made bearable.

During these delays to the south end, the north had been advancing with increasing rapidity, and had reached the central summit of the tunnel; to avoid delay, however, the heading, hitherto on the level of the floor of the tunnel, was made to rise on a gradient of 1 per 1,000.

When the advance heading reached the soffit of the future tunnel, working down hill was attempted, but finally work on the Swiss side was abandoned, the drills were withdrawn and the heavy iron doors which had been erected were closed (March 20th, 1904). Completion was thus left to the south advance, whose drills could just be heard through the intervening 1,094 yards of rock.

On the 24th February, 1905, at 6 a.m., the final charges on the Italian side were exploded in the roof of the gallery, blowing a hole about 8 feet by 2 feet into the floor of the Swiss heading above.

The first train passed through on the 25th January, 1906, and on the 19th May the King of Italy travelled in a special train to meet the Swiss President at Brigue, who returned with him to Domo d'Ossola; the final opening to the public taking place with great festivities on the 30th May, 1906.



New Ross Waterworks.—Tenders for this scheme, which is being carried out according to the designs and specification of Mr. F. E. Bergin, B.E., 36 Westmoreland-street, Dublin, have been opened. The tender of Mr. John Kelly, Brooklawn, Kilkenny, has been accepted, the amount being £8,737 13s. The following tenders were also received:—M'Laughlin and Harvey, £10,482 1s. 4d.; Patrick Blake, £10,298; H. and J. Martin, £11,871 os. 8d.; John Graham, Lagan Mills, £11,484 7s.; Martin and Co., Cork, £12,531 10s. 3d.; Grainger Bros., Holywood, £11,862 2s. 5d.; Jeremiah Fitzpatrick, Kanturk, £11,604 5s. 3d.; Collen Bros., Ltd., £12,120; M'Neill and M'Nally, £10,581 6s. 10d.; A. Hull and Co., £10,135; Fleming Bros., Lansdown Crescent, Portrush, £11,084 7s. 10.

INSTITUTE OF SANITARY ENGINEERS.

Sewage Problems.

By MR. THOMAS B. SIMMONS, Mem.Incp.Assoc. and M.R.San.I.

Engineer and Surveyor to the Maldens and Coombe Urban District Council.

At a recent sessional meeting, the papers read were "Sewage Problems," by Mr. T. B. Simmons (Fellow), and "The Dangers of Sludge Heaps," by Mr. J. P. Lord, F.R.M.S., etc. Mr. Simmons said:—

The subject of this paper, "Sewage Problems," has from time to time been a question dealt with by many eminent men both in the engineering and scientific professions, and although I do not feel competent to evolve any new feature in the complex subject, I hope, by referring to the present systems of sewage disposal, that it may be of interest to the members of the Institute, and so raise a discussion upon their relative merits.

In deciding upon a scheme for the treatment of sewage, the engineer should make himself thoroughly conversant with the various trades and businesses carried on within the area from which the sewage is to be accumulated, as by neglecting this the most approved scheme might be entirely upset; the fullest consideration must in all cases be given to local conditions and requirements before finally deciding, for what would prove a success in one district, at a nominal annual charge, would not be quite so convenient, economical or successful in another. The best system, to my mind, is the one that is most simple in management, so that the person who is left in charge can thoroughly understand the fundamental principles. It is also advisable to take into consideration whether it is necessary to pump the sewage, or whether it can conveniently discharge by gravitation to the disposal works. Why do I refer to the matter of pumping the sewage? Because it is a point which I do not think has, as a rule, been taken into consideration as a factor in the further treatment, but I consider it to be a most important factor, and I am sure you will agree with me that the churning action caused by the pumps very considerably breaks down the solids in the sewage, and since the centrifugal pump is finding such favour, the breaking down action of the solid matters is even more effectual than in the plunger type of pump.

The systems I propose to refer to are considered to be separate or partially separate systems; by the partially separate system I mean that all road gullies, and, where possible, the rain-water pipes from the fronts of houses, are connected to the surface drainage system of the district. In districts having a population up to 30,000, where sewage requires pumping on to the works, the sewage should gravitate to tanks or a tank sewer, according to the depth at which the sewage gravitates to the works, the capacity of such to be equal to not less than twelve hours' dry-weather flow; by this means the pumping machinery can stand at rest during the night, and so reduce the permanent charge necessitated by pumping. In larger districts than those aforementioned it would be necessary to provide for continuous pumping; in that case the tank accommodation would be provided on the surface.

In cases where the sewage flows to underground reservoirs, the outlet from same to the pump sump must be provided with a grating constructed of iron bars from $\frac{1}{2}$ in. to $\frac{3}{4}$ in. apart, so that the sewage, in passing, may be freed from any foreign substances which may by mischance have got into the sewers. A mechanical spiked cleansing arrangement must be provided, so that the grating may be cleansed from time to time of the matters adhering to it, and such matters should be disposed of when dry by burning.

When the sewage gravitates to a proper level on the works, it should deliver into a detritus and screening chamber, the outlet from which should be protected by a screen grating, as before stated.

I think you will all agree with me up to this point of the reception of the sewage at the works, but it is from the point of leaving the screening chamber that the diversity of opinion begins as to its further treatment, so that I may be pardoned for stating what I consider to be a most simple and effective system for the final treatment on "bacterial lines."

I wish to make myself perfectly clear at this point as to the preliminary reception of the sewage at the works. In all cases there should be a storage capacity, either by means of underground tanks in cases where pumping is necessary, or tanks on the surface where the sewage gravitates, equal to twelve hours' dry-weather flow, for the purpose of night

storage only, the tanks being emptied every day on to the primary beds.

Where the sewage gravitates to the works, the inlet to the screening chamber should be so arranged that when the volume exceeds three times the dry-weather flow the excess liquid will pass over a weir and on to the storm area.

The liquid which has accumulated during the night, and that delivered during the day, would pass direct to the primary contact beds, which should be 3 feet in depth and constructed of slate *debris*, as patented by Mr. Dibdin, F.I.C. The construction of this bed is like a honeycomb, the slate being built up in layers, with cavities between each layer of from $1\frac{1}{2}$ in. to 2 in.

My reasons for advocating this construction for primary beds are: the large amount of surface for the precipitation of the solids, carried in suspension to the bed, together with the large area for the cultivation of bacteria for the effectual breaking down of the precipitated solids, and the imperishable nature of the material of which the bed is constructed. To my mind, the greatest advantage in such a primary contact bed is that it can be kept to its fullest working capacity, and in these slate beds the fullest capacity may be maintained by periodically flushing the layers in the bed with water from a hose with a long nozzle from inspection openings in various parts, which would be prepared when the bed was being constructed. It has been found that on flushing out the beds the remaining deposit of the precipitated matter, when dried, resembles gritty garden mould, and is free from smell. More important still, its bacterial contents are undistinguishable from those of normal earth.

When drawing the effluent from these beds, care must be taken to do so very steadily by regulating the outlet valve, so that the deposited matters should not be drawn from the bed by the flow of the effluent leaving it.

The period of contact must be two hours, and the period of rest not less than four hours.

The secondary contact bed would be constructed of well-burnt clinker for a depth of 3 ft. The lower layer, for a depth of 2 ft., must be a graded material to pass a 1 in. mesh sieve, and be held on a 1 in. mesh sieve. The top-sides to centre, and from the end to the outlet, upon which pass a $\frac{1}{2}$ -in. mesh sieve, and be held on a $\frac{1}{4}$ -in. mesh sieve. The floors of the beds should have a good fall from the most layer, to a depth of 1 ft., should be that which would be the under drains, constructed in such a manner as to drain off all the liquid matters. The period of contact and rest would be the same as in the primary bed.

With respect to the filling of the beds, the effluent should be evenly distributed over the surface of the secondary bed; but in the case of the slate bed, the volume can discharge immediately upon the slate material; the liquid will find its way through the open joints of the slate.

In the slate contact beds, I consider it would be advantageous to draw off the effluent from the same end of the tank as the sewage is delivered into it, for this reason. The volume of sewage is delivered into the bed as quickly as possible, consequently a certain amount of the sedimentation on the various layers will be disturbed and driven by the flow of water towards the further end of the tank, so that when the effluent is being drawn off, the sediment would again be disturbed and distributed in even layers, whereas if the outlet valve is at the extreme end, the first water drawn off would undoubtedly carry with it a large amount of the sedimentary matter which has been driven in that direction.

When the effluent has been treated in the secondary bed, it should pass over a prepared irrigation area, which, if properly looked after, very considerably increases the value of the effluent both physically and chemically by oxidation. But this would not be necessary where the effluent discharges into a tidal stream.

The system I have endeavoured to outline is one in which I consider the sludge problem is brought down to a minimum, and a good effluent can be obtained.

Should this system require working night and day, it would be necessary to fix syphons or alternating gearing to regulate the intakes and outlets from the beds. I am not in favour of expensive mechanical arrangements, if it is possible to dispense with their use.

Sedimentation.

As I stated in the earlier part of this paper, what would prove economical and satisfactory in one district would not be so beneficial in another; therefore, in installations requiring continuous treatment, night and day, it would be more advantageous to have an installation of sedimentation or septic tanks (not entirely closed in, but roofed over), such tanks to be of a capacity of not less than one day's dry-weather flow, the flow of sewage in such tanks to be in

such a direction as to have no appreciable action upon the surface of the liquid in the tanks; the effluent in passing from the tank must be at a slightly lower level than the inlet to the tank, from this point it should pass on to percolating filters; such filters must be from 6 ft. to 7 ft. in depth, and composed of well burnt graded clinker.

When percolating filters are adopted, it is advantageous to utilise a mechanical arrangement for the even distribution of the tank effluent over the filter-bed. Special care must be taken with the tank effluent, for should any sedimental matter be allowed to get into the sprinklers, the spray-holes will become choked, and eventually the whole arm will become in a foul condition.

In this system there is the tank sludge difficulty to be combated.

Broad Irrigation.

This system is one requiring broad acres. The method has become almost obsolete. In instances where the system is still in vogue, the sewage is delivered in its crude state direct upon the land. In a few cases precipitation tanks have been laid down, but the sewage is very little, if any, the better for having passed through them. The system is invariably a source of nuisance, by the fact that the ground used for irrigation purposes is overworked and becomes absolutely sewage sick. Again, the position chosen for the farm is usually one in low-lying land totally unfit for irrigation purposes, and where it is impossible to drain by natural means the various areas, and if the sewage farm is of large dimensions, the authority to whom it belongs has rarely ever gone to the large expense of providing an efficient system of subsoil drainage for the purpose of effectually draining the irrigation areas.

Chemical Precipitation.

The method of treating sewage by chemical precipitation has for many years found favour in various districts. The process is to add a percentage of lime and alumina ferric to the crude sewage as it is being delivered to the precipitation tanks. The average mixture is 6 grains lime to 3 grains alumina per 1 gallon crude sewage.

The precipitation tanks are a minimum depth of 4 ft., with a sludge carrier channel through the centre for the full length of the tank, about 2 ft. wide, and average depth of 1 ft., having a fall towards the valve leading to the sludge well; the floor of the tank has a fall from the side walls to the sludge channel, so that when the liquid has been removed from the tank the sludge or precipitated matters can be removed from the floor by sweeping into the sludge channel, and thence to the sludge well.

It is customary to have two floating partitions about 2 ft. in depth fixed in iron runners secured to the side walls, and dividing the tank into three sections; these partitions run the full width of the tank. The crude sewage, being compelled to pass under the floating partitions, deposits, with the assistance of the added chemicals, the glutinous and solid substances and suspended matters upon the floor of the tank. The effluent, after leaving the precipitation tank, gravitates to filter-beds, being evenly distributed over the surface of same by means of carriers having perforated sides. From the filter-beds the effluent is distributed over prepared areas as a final treatment previous to being discharged into the stream.

In constructing the filtering-beds I have found graded clinker to a depth of 2 ft. 6 in., with a top-dressing of fine clinker 6 in. in depth, to be the most effectual. It should be borne in mind that a very small amount of lime is carried in suspension from the tanks to the beds, and if this, together with other gritty matters, becomes incorporated with the graded clinker, a concrete mass is formed, and in time it is impossible to get the effluent to percolate through the bed. I have seen beds which have had a formation of this concrete for a depth of 1 ft. from the surface of the filtering medium; therefore, by providing a top layer of well-burnt fine material, the precipitated lime remains upon the surface of the bed, and during the period which the bed is at rest the lime dries, and can then easily be removed, after which the surface of the bed is raked over, and the bed is ready for working again. This should be done at least once in every month.

In this chemical precipitation process, the precipitation tanks are usually worked from four to six days each, the liquid is drawn off, and the accumulated precipitated matter is passed to the sludge well. The crude sludge, as it is now termed, is raised from the sludge well to the mixing tank by means of a chain pump, a quantity of ground lime is delivered into the mixing tank from a measuring hopper in a proportion according to the size of the mixing

tank, and the whole is incorporated by a mixing fan; on the completion of the mixing, the lid of the mixing tank is secured, when the contents of the tank are forced by compressed air to the sludge presses, in which it remains under pressure for one hour and a quarter, during which time it is being deprived of its moisture. The material, when removed from the press, is in the form of cake; it is then taken and deposited on the sludge heap.

There is no doubt whatever that in this system, after the effluent has gone through the cycle of treatment, it is delivered into the stream bright and sparkling, but the cost of the treatment is heavy, together with the difficulties of getting rid of the sludge; the dangers of such sludge heap I will leave in the hands of Mr. J. P. Lord, F.R.M.S., who has made some exhaustive experiments on this subject. I will, therefore, ask him to give you the results of his researches.



OUR ILLUSTRATIONS.

Competition Designs for Library at Hove, Sussex.

This competition, which was an open one, resulted, in the first place, in 71 designs being submitted. The assessor, Mr. Belcher, refused to award the premiums to any of these, on the ground of non-compliance with the local bye-laws, or because of other defects. After some time it was decided that ten of the best designs should be selected, and their authors invited to enter into limited competition for the work, the names following being chosen:—

1. Percy Robinson and W. A. Jones, Leeds.
2. Hardwick and Castle, Kingston-on-Thames.
3. Lionel V. Grace, John Street, Bedford Row.
Thos. Allen and Sons, Adelphi.
Blangy and Van Baars, with W. F. Cotton, Old Sq., W.C.
- George F. Beckett, Dublin.
- Cox, Trunnell and Davison, Adelphi.
- L. Dowie, West Kensington.
- J. B. Fulton, Bedford Row, W.C.
- C. H. Norton, Bedford Row.

The final award gave the premiums to those competitors numbered respectively 1, 2, and 3 on the foregoing list.

The design we reproduce was that submitted by Mr. George Beckett, of 97 Stephen's Green, Dublin.



MONAGHAN AND CAVAN LUNATIC ASYLUM.

A Large Contract.

With a steadily increasing admission list, the Committee of the Monaghan and Cavan Lunatic Asylum had no other alternative left them but to erect an additional building. This was decided on now almost two years ago, and the fine new block of buildings, which have been erected at a cost of £10,000 odd, are now receiving their internal finishing touches preparatory to their being in readiness to accommodate 120 patients early in the coming spring. The total number of inmates at present in the establishment is close on 800. Mr. T. F. Macnamara, Dawson Street, Dublin, was selected as architect, and Messrs. Wm. Callaghan and Sons, builders, Moralin, Lurgan, secured the contract at the above-mentioned sum. The new building is detached from the main edifice, and lies to the extreme north-west of the asylum grounds, on an eminence overlooking the main road from Monaghan to Glasslough. The total length of the front of the building, which is facing south, is 240 feet. It is 24 feet to the eave, and 63 feet in width. Built of local limestone, it is lined with Belfast-made brick (from M'Gladdery's kilns on the Springfield Road). The windows in the front elevation measure 7 feet by 3 feet 6 inches, and may be said to be uniform over the structure. That the work of thoroughly lighting the new block has not been overlooked is evident from the fact that there are over 150 windows in the building. All the floors are of 1½ inch maple. The joists are carried on strong iron girders 14 feet by 7 inches, while the joists are 11 inches by 2 inches. The doors are very strongly framed and durable, and measure 7 ft. 6 in. by 4 ft. The material used is red pine, and all are neatly panelled and have fan lights. The outside of the building, which is two storeys high, is finished in cement. At the rear, large kitchens, scullery, heating chamber, larders, attendants' rooms, and other necessary apartments have been provided. The entire work has been carried out with exactness of detail and an excellence of finish for which the Messrs. Callaghan's firm deserve every credit.

THE ROYAL INSTITUTE OF ARCHITECTS, IRELAND.

The annual general meeting of the Royal Institute of the Architects of Ireland was held at 20 Lincoln Place, Dublin, on Thursday at 4 p.m. The President, Mr. W. M. Mitchell, F.R.I.B.A., R.H.A., occupied the chair.

The following were also present:—Messrs. J. Holloway, J. Geoghegan, R. J. Stirling, R. C. Orpen, C. H. Ashworth, G. Crowe, E. Bradbury, A. E. Murray, F. Hayes, E. H. Morris, C. A. Owen, G. C. Ashlin, C. H. Mitchell, G. L. O'Connor, F. H. Tallon, F. G. Hicks, A. G. C. Millar, Sir Thos. Drew, H. Allberry, and James H. Webb, hon. secretary.

The report of the Council for the year contained the following:—

"The Institute has this year added to its Fellowship list, and the following were elected to that honour:—C. H. Ashworth, Frederick Batchelor, Vincent Craig, Robert Cochrane, W. J. Fennell, F. G. Hicks, Arthur Hill, W. H. Hill, R. Caulfield Orpen, C. A. Owen, and Geo. P. Sheridan. The secession of the Ulster Society, which was communicated to the Institute on the 22nd August last, came as a complete surprise. This Society, having terminated its alliance with our Institute, is now seeking affiliation with the R.I.B.A. The Council deeply deplore these steps, which have introduced a spirit of rivalry and discord which cannot but injuriously affect the status of our profession. On these grounds, and having solely represented the profession in Ireland for the last sixty-seven years, the Council of this Institute has found it necessary to oppose the granting of such direct alliance. The Institute prize of ten guineas offered for competition among members of the A.A.I. was this year awarded to Mr. A. W. Reid. The subject was: 'A Bank for a Country Town.' Mr. C. H. Ashworth acted as assessor. During the year the Council approached the Paving and Lighting Committee, in which is vested power to grant sites for memorials in city thoroughfares, suggesting that the Arts Committee of the Institute would be willing, if invited to do so, to give practical advice in regard to allocation and site, and suitability of proposed designs. The Council is pleased to report that the Paving and Lighting Committee undertook in future to take advantage of the advice and guidance which the Arts Committee of the Institute had shown itself ready to give. The Council has made every effort to secure a competition among Irish architects in connection with the design for the proposed new Technical Schools."

Attention was directed to the coming Conference in Dublin in June next of the Sanitary Institute, and to the facilities this would afford to architects to discuss such important matters as drainage, sewage disposal, water supply, ventilation, and other works for the advancement of sanitary science.

Referring to the revision of the conditions of contract, the report says these conditions now

Contain many manifest improvements on the very incomplete and sometimes contradictory conditions for many years in general use in Dublin, and have been framed with due consideration for the interests of contractor and employer. The Council appeals to all its members, and the building trade generally, to give these conditions a fair trial, fully recognising that experience may show that modification may be advisable.

The report next refers to the efforts made to provide a Chair of Architecture in Dublin University, and to the steps taken by the Council in advocacy of the employment of properly qualified architects to provide plans and to superintend the execution of contracts on behalf of Rural Councils undertaking the erection of labourers' cottages. As a result of the latter, a clause was introduced into the Bill providing that

architects employed under the Act shall satisfy the L.G.B. that they have sufficient knowledge and experience for such employment.

The Council, however, considers the fee allowed on small schemes "entirely inadequate," and in other respects the L.G.B.'s regulations are condemned.

Mr. A. E. Murray proposed, and Mr. R. J. Stirling seconded: "That the report be adopted and circulated," which, after some discussion, was passed unanimously.

Mr. Owen proposed, and Mr. Holloway seconded:—"That the treasurer's report be adopted," which was also agreed to.

The President announced that the following members

were elected to serve on the Council for 1907:—Messrs. C. H. Ashworth, R. C. Orpen, G. C. Ashlin, Sir T. Drew, H. Allberry, F. Batchelor, C. A. Owen, G. P. Sheridan, and A. E. Murray, together with the hon. treasurer, Mr. F. G. Hicks, and the hon. secretary, Mr. J. H. Webb, and a representative of the Architectural Association of Ireland.

The President then read his annual address, and after dealing with the question of registration of architects, and the proceedings at the seventh International Congress of Architects, referred to the secession of the Ulster Society of Architects last August, and said, in spite of the explanations which had been given by the Ulster Society for their extraordinary action, he did not consider a single valid reason had been advanced to justify it. He continued:—"The notice of the report with regard to the correspondence with the Corporation respecting the new Technical Schools suggests the thought that our City Fathers are sadly remiss in their management of this branch of their duties. It is now more than two years since the question of securing a site for this important building arose, and we can all remember the newspaper war which ensued between the advocates of rival plots, who, in most instances, no doubt, had axes of their own to grind. It was not an edifying spectacle, but having at length secured one, we are entitled to ask why they did not at once proceed to make arrangements for the new building. It is certainly not to their credit that such an unwarranted delay should have occurred, and such a deplorable apathy to the crying educational wants of their fellow-citizens should be exhibited by them."

Sir Thomas Drew proposed, and Mr. F. G. Hicks seconded, a vote of thanks to the President on the approaching termination of his period of office for the assiduous manner in which he has discharged the duties connected with his onerous post.

Annual Dinner.

The annual dinner was held at the Hotel Metropole, on Thursday evening, January 3rd. The President, Mr. W. M. Mitchell, R.H.A., was in the chair.

Amongst those present were:—

Dr. R. Charles Maunsell, Messrs. William Ross, President of the Institute of Civil Engineers, Ireland; R. Norman Potterton, Chairman Kingstown U.D.C.; W. R. Richardson, W. S. Jervois, W. J. Fennell, C. A. Owen, W. H. Symons, E. Bradbury, William Beckett, C. H. Ashworth, V. D. Inglis, George Hewson, A. W. W. Baker, M.D.; D. L. Rogers, E. M. Fannin, M.D.; F. G. Hicks, Hon. Treasurer; F. Hayes, J. P. Lynch, Sir Thomas Drew, G. P. Sheridan, W. M. Paton, A. E. Murray, G. C. Ashlin, H. Allberry, G. W. Crowe, Page L. Dickenson, F. H. Tallon, R. O'B. Smith, F. Batchelor, and J. H. Webb, Hon. Secretary.

After dinner, the toast of the King having been duly honoured, the President proposed the toast of the Institute. In the course of his remarks he dealt with the present position of the society, and the gradual increase of its influence in the profession, and incidentally dwelt on the educational work carried on by the junior association in a highly appreciative strain. Following usual custom, the loving cup, presented to Sir Thomas Drew on the occasion of his knighthood, was then circulated. The President next proposed the health of the guests, which toast was accorded musical honours, and was responded to by Dr. Maunsell, Mr. Ross, and Mr. Potterton. Mr. Orpen and Mr. Ashworth, the outgoing Hon. Secretary and Treasurer, were thanked by the President in a felicitous speech for the splendid work each had accomplished for the Institute during his term of office, lasting three years. The final toast was that of the President, proposed by Sir Thomas Drew, who said that the value of sterling honesty of purpose was clearly indicated in the present occupant of the chair, who held the esteem and regard of the whole of his professional brethren throughout Ireland. The pleasure of the evening was greatly enhanced by an admirable programme of music arranged by Mr. F. G. Hicks, the present Hon. Treasurer. Amongst those who contributed may be mentioned Messrs. Rogers, Hicks, Bradbury, Paton, Ashworth, and Dr. Wilson.



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THE COMPOSITION AND STRENGTH OF MORTAR.

At the last meeting of the Royal Institute of British Architects, London, a paper on "The Composition and Strength of Mortar" was read by Mr. W. J. Dibdin, F.I.C., F.C.S.

The author said that the composition of ordinary lime mortar in relation to the resulting strength is in the highest degree important. The by-laws of the London County Council regarding the composition of mortar merely specify that it shall be composed of freshly-burned lime and clean sharp sand or grit without earthy matter, in the proportions of 1 of lime to 3 of sand or grit, but contain no reference to strength, leaving it to be inferred that if the composition is within the strict definition the strength must necessarily be practically constant—quite apart from the particular purpose for which the mortar is to be employed. Further, no "factor of safety" seems to have been considered; so that whether the mortar is used for a 10-ft. wall or one of 100 ft. in height, the by-laws equally apply without any precautions.

Mr. Dibdin proceeded to describe a series of experiments he had carried out on briquettes and blocks specially made for the purpose.

The results of the tensile and crushing tests showed that mortar made with the proportions of 1 volume of sand to 1 volume of lime with the sand unwashed as received had a crushing strength of 150 lbs. per cubic inch. When the sand was increased to 2 volumes the strength fell to 92 lbs. per inch. With 3 volumes sand it was only 52 lbs., and with 4 volumes 53 lbs. This experiment clearly indicated that an arbitrary limit of 3 to 1 is unsatisfactory, as it would prevent the use of the "excess" of lime, which in this case gave three times the crushing strength of that obtained when the by-law proportion of 3 to 1 was employed. In all the subsequent sets of this series the sand was used washed and graded. An illustrative diagram clearly brought out the fact that when the proportions were from 1 or 2 of sand to 1 volume of lime the strength was greater than when 3 volumes of sand were employed in all those cases in which the sand was coarser than 1.50 in.; but when the grading was from 1.50 in. and below, the strengths of the various makes were practically equal—namely, from 58 to 66 lbs. per inch.

The tests for tensile strength were in the same ratio, and clearly indicated that with these particular sands an *excess* of lime in contravention of the by-laws was a distinct advantage.

The results given in a further series showed the effect of time, up to eleven days, between the moment when the mortar was mixed and that at which the briquettes and blocks were prepared. From these it would seem that up to seven days there is an increased strength, but after that time—that is to say, after the mortar had once set—the effect of a second breaking-up was distinctly detrimental, although better results were even then obtained than at any time before the first setting.

Conclusions.

Summing up in conclusion the results of a fairly exhaustive series of tests, so far as the limits of the experiments extended, Mr. Dibdin said it seemed certain that the strength of a mortar depends far more upon the physical character of the materials employed than has hitherto been fully realised. If the usual prescription of 3 to 1 be rigidly adhered to, the mortar may have in certain cases only one-third of the strength of that which might be obtained with as widely varying proportions a 5 of sand to 1 of lime; and it would appear to be desirable that the *strength* as ascertained by crushing should be the *criteria* rather than by arbitrary proportions. The tests can be made with great facility, and should be employed in all cases. Mr. Dibdin said he must not be taken to suggest that any and every admixture should be sanctioned; but where the materials are clean and sound and free from dirt (such as unwashed road-sweepings, dustbin refuse, old mortar, etc.), no unreasonable objection should be taken to their use provided that they yield a mortar having strength sufficient for the work in hand.

A discussion followed, in which Messrs. Searles Wood, William Woodward, Max Clarke, Alan E. Munby, W. D.

Caroe, and T. E. Collett took part. On the motion of Mr. Max Clarke, the following resolution was passed:—"That this meeting is of opinion that the question of the composition of mortar is a matter which deserves the fullest consideration, and with that end in view, the Council be asked to vote a sum of money to aid investigation into the subject."



OUR SOUTHERN LETTER.

(FROM OUR CORRESPONDENT).

Railways.

The Cork and Fermoy Railway, which was embodied in the Fishguard and Rosslare Railways and Harbours Act, 1898, and also in subsequent Acts, has now been definitely abandoned, and a notice published that any persons whose property has been interfered with or otherwise rendered less valuable by the commencement or abandonment of the proposed railway, or in consequence of the exercise of the compulsory powers conferred, should prove their claims before the Master of the Rolls, Dublin; failing to do this, they will be peremptorily excluded from the benefit of said order. This is done so as to protect the promoters from any claim raised hereafter on account of their not carrying out the powers granted under the Acts obtained by them, and also so that the Treasury grant promised may be set free for the powers obtained under the Cork City Railways Bill, passed in Parliament, 1906.

It is understood that Mr. John R. Kerr, B.E., Manager and Engineer of the Cork, Bandon, and South Coast Railway will have charge of the bridges to be built across both channels of the River Lee in connection with the Cork Junction Railways.

The evidence presented to the Viceregal Commission appointed to inquire into the working of the Irish railways, which is at present sitting in Dublin, should prove of an interesting character, as the object of the Commission is to discover what improvement can be made in the existing systems, and they will probably deal with the question of amalgamation or State purchase.

General.

The Local Government Board have sanctioned the loan of £2,320, applied for by the Mitchelstown (No. 1) Rural District Council, for the purpose of carrying out a scheme for the lighting of the town of Mitchelstown by means of electricity, the loan to be repaid within a period of 25 years. The Board of Trade will require the system proposed to be used to be submitted to them for approval before the work is commenced, and have sent to the Council descriptions of systems of electric lighting which meet with their approval.

The Cork Corporation have applied to the Local Government Board for sanction of a loan of £6,000, for the purpose of paving streets, and also for £200 as a supplemental loan, for providing a hall at the Municipal School of Music, and Mr. A. D. Price, M.Inst.C.E., Engineering Inspector has been appointed to hold a local inquiry into the application.

In connection with supplying and fixing the benches for the New City Hall, the Cork Corporation received three tenders; the lowest was for the sum of £342, which was accepted, and the Cork Timber and Iron Company, Ltd. were declared contractors for the work.

The Admiralty have informed the Cork Harbour Commissioners that they have under consideration a scheme for extending His Majesty's Dockyard at Haulbowline by the reclamation of the adjoining area, which would extend the dockyard southwards in the vicinity of Rocky Island, and they invite the Commissioners to favour them with any recommendations they may wish to make in connection with the proposal.

This may be considered as very satisfactory, as it shows that the Admiralty are anxious to develop the Dockyard, which will at the same time add to the prosperity of the port of Cork.

An arbitration was held last week in Macroon in connection with the Macroon sewerage, in order to arrive at the compensation to be paid to the Church Representative Body and the Rector, through whose lands portion of the sewers were laid and works carried out thereon. The arbitrators were Mr. W. H. Hill, Jun., C.E., for the Church Body and Rector, and Mr. Neville for the Macroon Urban District Council. They failing to agree, the matter was referred to the umpire, Mr. T. M. Deane, F.R.I.A.I., of Dublin, who was appointed by the Local Government Board.

MONAGHAN NEW INDUSTRIAL SCHOOL BUILDINGS.

The new Industrial School buildings, which are now in progress of erection on the spacious and well laid out grounds attached to the Convent of St. Louis, Monaghan, and whose erection will cost upwards of six thousand pounds, are nearing completion, and form the most graceful and imposing of all the Convent buildings. The old Industrial School structure was totally inadequate to meet the wants of the large number of little girls both educated and maintained by the Sisters of St. Louis. The plans and specifications, etc., were entrusted to Mr. J. J. McDonnell, T.C., J.P., architect, M.R.I.A.I., Belfast, and the new building presents a really attractive appearance. Out of a large number of contractors, the Messrs. D. and A. M. Naughton, builders, Randalstown, Co. Antrim, were selected to carry out the work. The new building, which is three storeys high, stands on the site of the old one. It measures 120 feet in length by 28 feet in width, and is 42 feet from the ground line to the eave. The returns at either end measure 16 feet by 20 feet. All through the material used in the structure is Laganvale (Belfast) brick, while the cut stone used in the handsome main entrance door and in the other parts of the building is from the Dungannon quarries, and is a beautiful white. Gothic is the style of architecture. The windows are all very large, the sills and heads being of cut stone, having mouldings wrought on same, with moulded brick jambs in string courses of English blue facing brick as continuation of sills, and a double course of same at the springing of the windows. There is a verandah running along the entire length of the building, supported by metal columns about 10 feet high. The walls are wainscotted to a height of 4 feet 6 inches. On the ground floor there are two spacious class-rooms, each 35 feet by 24 feet wide, and also a work-room 16 feet by 20 feet, and a clothes-room 15 feet by 19 feet, a boot-room, etc. There is a large dormitory on the first floor, 70 feet by 24 feet, having fine large windows, and well ventilated. A bath-room, lavatories, all fitted up on the most approved style, have been supplied, and a Sisters' room, 17 feet by 15 feet, adjoins the children's dormitory. The second floor is constructed on similar lines to that of the first, and also contains a large dormitory 70 feet by 24 feet, a clothes-room, etc. The windows and

doors all through are trimmed with yellow pine—and the carpenter work in general has been executed in faultless style. The heating of the building will be carried out in the most approved and modern fashion, and the entire building when completed within the next few months, must certainly rank as one of—if not the handsomest and best of its kind in Ulster.



Clare.—At a meeting of the Clare County Council, held on Monday, 17th inst., to consider the Chief Secretary's offer in reference to the Scariff Light Railway, the following resolution was adopted:—"That we, the Clare County Council, express a desire that the Chief Secretary's offer of the sum of £6,000, which Mr. Gerald Balfour offered towards the building of a light railway to Scariff, to either the Midland or Great Southern and Western Railway, for the purpose of either of them taking over the West and South Clare Railways, and converting them to a standard gauge and working them, the Treasury continuing to guarantee at 20 per cent., the Council to be relieved of all further liability, be accepted."

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HEAD OFFICE

JANUARY 26, 1907.

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TOPICAL TOUCHES.

The annual distribution of prizes to the pupils of the Metropolitan School of Art will take place on Wednesday next, at 3.30 o'clock. His Excellency the Lord Lieutenant will distribute the prizes.

* * * *

The Directors of the Hammond Lane Foundry, on Tuesday last, received a number of gentlemen interested for an inspection of Irish-made electric arc lamp poles, made at the Hammond Lane Foundry. With the increasing use of electric light for public purposes, it would be a pity should there be a necessity for importing the accessories. In the detail of standards, the Hammond Lane Foundry have shown what can be done in the country.

* * * *

The Durrow Brick and Tile Company draw our attention to their red facing bricks. The Company manufacture the following varieties of bricks:—Facing bricks, three qualities; common bricks, two qualities; paving bricks, four varieties; moulded bricks, thirty varieties; engineering bricks, fire bricks. All of these bricks have been recently tested by Messrs. David Kircaldy and Son, and have yielded most excellent results.

* * * *

The Local Government Board and their technical advisers have shown commendable promptitude in deciding the competition for the prizes offered for the best design for an Irish labourer's cottage. The task was no easy one, owing to the number of designs sent in.

* * * *

No less than 386 different competitors, hailing from all parts of Ireland, England, Scotland, Wales, and from Jersey took part, and as almost all of the competitors availed themselves of the permission to send in three designs, it may be roughly stated that over one thousand separate designs, exclusive of detail drawings, were in competition.

* * * *

The selection made results in the two first prizes going, the one to a Lancashire architect, the other to a Scottish gentleman resident in Dublin; while we are glad to note that the third prize has been awarded to a well-known Dublin architect, in the person of Mr. T. M. Deane, M.A. (Sir T. H. Deane and Son).

* * * *

We were permitted the opportunity of viewing a large number of the designs, not, however, including the winning one, which had been sent away to be reproduced for distribution without loss of time.

* * * *

The response to the Board's invitation has been a very worthy one, and so far we have not heard a single word of complaint from competitors on any point. The time and labour involved in the preparation of a design was not very great, while the premiums may be called liberal.

* * * *

The most striking note amongst the drawings we saw was the fine standard of draftsmanship displayed by many of the competitors; next to this, the extraordinary

variety of plan and type evolved by the 386 minds, from a problem which, at first sight, would certainly not seem to allow much room for either diversity or originality. On the whole, the display was varied and most creditable.

* * * *

It was comparatively easy to pick out the English and the Irish designs; and while there were many designs quite impracticable and utterly oblivious of cost, not to speak of simplicity of construction and economy of maintenance, such were fewer than might be expected amongst such a vast number, the great majority of the competitors evidently making an honest attempt to comply with the conditions laid down.

* * * *

The designs comprised every possible variety of one and two-storey cottage imaginable, ranging from that of the gentleman who sent in a design for a large castellated structure, with hot water system, and accompanied by a detail of a kitchen range framed and set in white marble and gold mosaic, to that of him who recorded his conceptions on a half sheet of notepaper, embodying a design unaccompanied by an elevation, and with no windows indicated, and the fires shown by red ink blots.

* * * *

The general impression produced was that most of the (apparently) English designs, while much more picturesque and artistic in every sense exteriorly, were impracticable, because of breaks, returns, hips, valleys, or dormers, or excessively wide roofs and waste in planning. Whereas some of the simplest and most practicable designs were utterly impossible, because of the hopelessly bad elevations, pointing to the fact that many of the competitors of most practical experience as to what could be done in an average Irish country district, were not trained architects, or possessed of any artistic ability.

* * * *

In addition to the three premiated designs for labourers' cottages, we understand that twelve others have been specially commended.

* * * *

One thing the competition showed very plainly, and that is, that ideal of a roomy, picturesque labourer's cottage for £130 is a myth. Not one of the designs we saw could be realised for the amount named in an average Irish district. As the contributor of the very humorous article, recently read before the A.A.I., says, the solution appears to be "mud."

* * * *

Seriously though, we sincerely hope that in their desire to realise an impossible ideal, the L.G.B. will not be persuaded to reduce the accommodation. If the house really cannot be built for £130, then let it cost £150, but build a decent house, properly built, with a roomy good kitchen, and enough bedroom accommodation for the decent separation of the sexes—and this means a four-roomed house. It were better to build forty such houses than fifty containing only a miserable, stuffy kitchen, and two tiny bedrooms. There is no advantage to the country in taking a man out of one overcrowded hovel and putting him into another, newer and better built though it may be.

Mr. M. G. Buchanan, sole agent for Dublin and Leinster for Messrs. Helliwell and Co., the well-known Patent Glazing Manufacturers, has removed his offices from 17 Nassau Street, to College Park Chambers, 8 and 9 Nassau Street, Dublin.

* * * *

A new reredos, large and very elaborate in character, is about to be erected in Killarney Cathedral, from the designs of Messrs. Ashlin and Coleman, the execution of the work being entrusted to Mr. Patrick Tomlin, Sculptor, of Grantham Street, Dublin.

* * * *

The reredos will be carried out in Caen stone and various coloured marbles. The lower portion has four richly inlaid piers, and several carved panels, with carved diaper work between.

* * * *

The upper portion of the reredos forms an arcade, with carved and cusped pointed arches, supported by clustered shafts in coloured marbles. In the arcade are inserted three large sculptured groups representing, respectively, the following subjects: "The Holy Family," "The Visitation to St. Joseph," "The Flight into Egypt," together with two large panels showing adoring angels. The groups are separated by four piers with carved pinnacles, the whole surmounted by a Gothic cresting.

* * * *

As our readers are probably aware, Killarney Cathedral was designed by A. W. Pugin, and, though plain in the extreme, has great lines of dignity, but is not nearly so good as his Enniscorthy Cathedral.

* * * *

The coming into force on the first day of the new year of the measure entitled, "An Act for the better Prevention of Corruption," is a matter of very great importance to architects, engineers, contractors, builders' merchants, commission agents, and many others connected with the building and engineering trades. The passing of a corrupt and secret commission between, for instance, any builders' merchant and any contractor without the knowledge of the employer, or the payment of a bribe or "hand-over" to a clerk of works, is made a penal offence, rendering both parties liable to fine and imprisonment for five years. The drastic character of this Act appeared to us to touch many customs in the building trade, some amongst them hitherto regarded as harmless enough, that we deemed it opportune to publish the Act *in extenso*, and to commission Mr. William Johnson-Roberts, Solicitor, to write a special exposition of the Act for our readers' benefit.

* * * *

Mr. Johnson-Roberts is known as one of the best authorities in Ireland on matters of the sanitary laws, light and air, and building contracts. Some of his excellent papers, read before the Architectural Association, were reproduced by us from time to time.

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Waterford.—As will be seen from our advertising columns, the Governors of the Waterford and Bishop Foy Endowed Schools invite tenders for the erection of a new Primary School at Waterford, in accordance with the drawings prepared by Mr. William Friel, architect, Waterford.

In the course of an interview on the slippery state of London streets, the Chief Superintendent of Sweeping to the City Corporation had some interesting remarks to make on the subject of paving. Many of the London streets are paved with asphalt on account of the heavy traffic, but the use of wood-paving is growing in favour. Creosoted spruce, according to the superintendent, seems to be preferred to hardwood. It wears evenly, whereas hardwood has frequently a tendency to wear into pot-holes, and make a rough road. Here in Dublin, where the traffic is comparatively light, granite setts are the favourite, but where the traffic is heavy, as, for example, on the quays, the paving does not seem to last too well. In any case, the roadway is allowed to deteriorate into an exceedingly bad condition before it attracts the attention of the Paving Department of our Corporation.

OUR NORTHERN LETTER.

(FROM OUR CORRESPONDENT.)

Ulster Society of Architects.

The annual general meeting of the Ulster Society of Architects was held on the 20th ult. in the rooms of the Society. The report of the Council stated that the Society had made steady progress in numbers during the year, six members, four associates, and three students having been enrolled, making a total membership of eighty-seven. The steps leading up to, and the causes actuating, severance of the Society's connection with the Royal Institute of Architects of Ireland, were detailed; the report stating that the Council is now in negotiation with the Royal Institute of British Architects for a direct alliance, and hopes soon to be able to announce a successful issue of the negotiation. Reference also was made to the organisation of the profession in Londonderry, all the architects of standing in that city having now joined the Society. Examinations in connection with the Royal Institute of British Architects were held in Belfast by the Society in June, and all the candidates who presented themselves were successful in passing. The report recounted the steps taken by the Council in connection with the passing of the "Labourers (Ireland) Act," and went on to say—"Unfortunately the Local Government Board have seen fit, by the regulations which they have issued regulating the maximum fees to be paid, to completely nullify the wise provisions of the Act, in restricting the fees to an amount which no qualified architect could possibly accept." The report, as also the statement of accounts submitted by the Hon. Treasurer, was adopted. The following have been elected to the Council for the current year:—President, Mr. J. J. McDonnell. J.P.; Vice-President, Mr. F. H. Tulloch; Hon. Secretary, Mr. W. H. Patterson; Hon. Assistant Secretary, Mr. H. Lamont; Hon. Treasurer, Mr. R. M. Young. Council—Messrs. W. J. Gilliland, N. Fitzsimons, H. Seaver, T. W. Henry, and J. A. Davidson. Hon. Auditors—Messrs. V. Craig and W. J. Fennell. On the motion of Mr. Henry Seaver, seconded by Mr. W. J. Gilliland, it was unanimously resolved—"That this meeting protests against those regulations, issued by the Local Government Board of Ireland, which fixes the fees to be paid to architects for work done under the powers of the Labourers (Ireland) Acts at a maximum which is entirely unremunerative and much below what any qualified architect can accept, thereby completely nullifying the wise provisions of the Act which were intended to prevent any but qualified men being employed, thus offering a premium on dishonesty, and opening the door to corruption and waste of the ratepayers' money; and that copies of this resolution be sent to the Lord Lieutenant, the Chief Secretary for Ireland, the Local Government Board, and the Irish Members of Parliament."

After discussing the progress made in the matter of the statutory qualification of architects, the meeting terminated.

CORRESPONDENCE.

"An Old Correspondent."

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

Sir,—Thank you very much for your kindly note of my election (in to-day's issue) as an honorary member of the Society of Architects. I always greatly appreciate and value your kindly words. You may well call me an "old correspondent." It must be more than 30 years ago since I first became a subscriber, and used to write occasionally for dear old Peter Roe. My eye has just fallen upon the IRISH BUILDER for February 15, 1883 (vol. xxv., No. 556), and that is close on a quarter of a century ago, in which, under "Midnight Musings," a writer, who signs himself "Fingal" (I have not the remotest idea who he was), gives a humorous reference to myself, and couples me with "the Vale of Cashmere." He was quite right, too! I did carve the gargoyle he mentions in Molesworth Street, but a long time prior to that date—in, I think, 1863. With all kind wishes and many renewed thanks—Yours,

HARRY HEMS.

Ecclesiastical Art Works, Exeter,
12th January, 1907

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A memorandum on the state of the labour market in November, prepared for the "Board of Trade Labour Gazette," states that employment during the month was good in all the principal trades except the building trade and shipbuilding.

THE PREVENTION OF CORRUPTION ACT, 1906, AND ITS BEARING ON ARCHITECTS, ENGINEERS, BUILDERS, &c.

By W. JOHNSON-ROBERTS, *Solicitor.*

(Specially contributed to the IRISH BUILDER).

The Secret Commissions Act, or, to give it its formal description, "An Act for the better Prevention of Corruption," came into force on the 1st day of January, 1907.

The Scope of the Act.

It is a far-reaching and pretentious effort to cleanse the Augean stables of commerce, and to destroy, once and for all, secret commissions or considerations which, like a canker, have been devouring the very heart of the commercial integrity of the country. How far it will achieve this object remains to be seen. It applies to almost every profession or calling. The architect and the builder, the solicitor and his client, auctioneers, bankers, stockbrokers, and merchants of all kinds, will be affected by it. It creates no new principle of law, but chiefly strives to render more effective and more easy of enforcement the old maxim of equity that a trustee should not benefit by his trust. In *Andrews v. Ramsey and Co.* (89 L.T. Reports 481), and *Bartrem and Sons v. Lloyd* (90 L.T. Rep. 357), the position and civil remedy of a principal under the old law in a case of corruption is fully considered. The recent Irish case of the *Belfast Central Hotel Company v. McCann*, which is fully reported in the *New Irish Jurist* of the 5th February, 1904, also goes very thoroughly into the matter.

In this article it is my intention to consider the effect of the Prevention of Corruption Act *only*, outside of the law as hitherto existing. Although the "principal's" civil remedy yet remains, the criminal procedure provided by the new Act will now, no doubt, be chiefly utilised. The object of the Act is to prevent secret commissions or "tipping" in any shape or form between the agent or employee, and *any* other person at what practically is the expense of the principal or employer.

Definitions.

The first portion of sec. 1 ss. 1 of the Act enacts: "If any agent corruptly accepts or obtains, or agrees to accept or attempts to obtain, from any person, for himself or for any other person, any gift or consideration as an inducement or reward for doing or forbearing to do, or for having after the passing of this Act done or forborne to do, any act in relation to his principal's affairs or business, or for showing or forbearing to show favour or disfavour to any person in relation to his principal's affairs or business," he shall be guilty of a misdemeanour, and shall be liable on conviction on indictment to imprisonment, with or without hard labour, for a term not exceeding two years, or to a fine not exceeding £500, or to both such imprisonment and such fine, or on summary conviction to imprisonment, with or without hard labour, for a term not exceeding four months, or to a fine not exceeding £50, or to both such imprisonment and such fine. This portion of sub-section 1 only applies to an "agent," which word is by the Act defined to include "any person employed by" "or acting for another," and expressly states that "a person serving under the Crown or under any corporation or any municipal borough, county, or district council or any board of guardians is an agent within the meaning of this Act." It is to be noted that the word "agent" is not *limited* to such persons. It merely includes them, and very probably will be held to include a number of other persons who do not come under the designation of agent as popularly understood. If a person coming under this classification "*corruptly* accepts or obtains," or corruptly "*agrees to accept or attempts to obtain, from any person, for himself, or for any other person, any gift or consideration, etc.,*" he commits an offence under the Act. It may be well here to state that the general legal opinion is that "corruptly" will probably be judicially interpreted as practically equivalent to "secretly," that is, without the consent, knowledge, or approbation of the principal or employer, and for the use and benefit of the agent, or by his request or with his consent for the benefit or use of some

other person, possibly his wife or son, or a friend. The words "or for any other person" are evidently used to stop a loophole which would otherwise be much availed of.

If, in order to convict for an offence under this portion of the Act, it were necessary that the gift or consideration should be given to the "agent," convictions would seldom, if ever, be obtained, but the words used render such a device futile.

Offences Under the Act.

It will be noted that in order to offend under the Act it is not necessary that the gift or consideration should be actually accepted or obtained, the mere *agreeing to accept or attempting to obtain* constitutes a complete offence. Moreover, it is not necessary that the gift or consideration should be received from the party with whom the "agent" is directly dealing, if the "agent" receives it or attempts to obtain it from "*any person*," he is liable to prosecution. All the foregoing is, of course, subject to, and governed by, the fact that the thing received or done, *in addition* to being done "*corruptly*," *must* be received or done "*as an inducement or reward, for doing or forbearing to do, or for having after the passing of this Act done or forborne to do, any act in relation to his principal's affairs or business, or for showing or forbearing to show favour or disfavour to any person, in relation to his principal's affairs or business.*" The Act states that the expression "principal" shall include an employer, and it will probably be held also to include a number of other persons who would not generally be regarded as coming under that category.

The "Consideration."

As to the "consideration." It must be remembered that this need not necessarily be money or even money's worth; "*any gift or consideration*" which is accepted "*corruptly*" and for the purposes mentioned by the Act constitutes a misdemeanour. The agent *obtaining or attempting to obtain* the bribe will be equally guilty whether his subsequent part in the transaction is active or passive, and whether the thing to be done or not to be done was or was not carried out. As far as he is concerned his guilt is complete the moment he accepts or attempts to obtain the bribe. As most of the cases under the Act will no doubt arise in respect to agents' dealings, it may be worth while to consider in some detail the essentials necessary in order to constitute an offence. (First)—The party sought to be made amenable must be an "*agent*" within the meaning of the Act. This is very important, as apparently people who do not come under that designation are still free to accept and seek gifts, to do which, if they were agents, would render them liable to criminal prosecution. (Second)—He should "*corruptly*" accept, etc., the gift. What "*corruptly*" will be judicially interpreted to mean we have yet to learn, but probably "*secretly*" will, in a number of cases, be held to be "*corruptly*" if the other requirements of the section are fulfilled. That "*Secretly*" merely would not of necessity mean in every case "*corruptly*" will be seen further on in this article. The use of the word "*corruptly*" seems to suggest that under certain conditions the agent may receive a gift in relation to his principal's affairs which may not be corrupt. What class of gift this would be we shall consider later. (Third)—There *must* be "*a gift or consideration*" of some kind. Apparently, no matter how wickedly, secretly, or corruptly an agent acts in relation to his principal's business, unless he accepts or attempts to obtain some gift or consideration for it, his conduct does not come within the Act. The consideration need not necessarily pass between the agent and the giver of the bribe. The other requirements of the section being fulfilled, if it passes "*to any person*" the offence is complete.

The Nature of "Gifts."

As to the nature of the gift, the phraseology of the Act is so sweeping that any and every kind of consideration is

included—a pass to the theatre, a turkey, a box of cigars, or any small gift would, no doubt, be included within the letter, if not the spirit, of the Act—the same as if it were a valuable money presentation. (Fourth)—The act complained of must be done “as an inducement or reward” for doing or not doing certain acts; and (Fifth), the acts to be affected by the bribe must be “in relation to his (the agent’s) principal’s affairs or business.” So much for the person who corruptly accepts a gift.

The Giver of the Bribe.

I shall now consider the legal position of the giver of the bribe. The portion of the section referring to this person is, as will be seen, very similar to that dealing with the “agent,” except that it extends to “any person” who does certain acts, even though he has no business connection with the “principal,” or stands in no fiduciary relation to him. It enacts (sec. 1, ss. 1)—“If any person corruptly gives or agrees to give, or offers any gift or consideration to any agent as an inducement or reward for doing or forbearing to do, or for having after the passing of this Act done or forborne to do any act in relation to his principal’s affairs or business, or for showing or forbearing to show favour or disfavour to any person in relation to his principal’s affairs or business,” he shall be guilty of a misdemeanour, punishable by imprisonment or fine, and imprisonment as above. There seems to be a rather curious differentiation made between the corrupt giver and the corrupt receiver. As above stated, if the “agent” corruptly obtains, or attempts to obtain for himself or for any other person, any gift, etc., he offends under the Act; yet the giver of the bribe seems to incur no liability, save when the gift is made to the “agent.”

Who is Liable?

If, for example, a builder’s provider presented the contractor with a gift coming within the meaning of the Act, both would apparently be equally guilty, but if the former, at the request, let us say, of the latter, made the gift to some “other person,” the contractor’s wife, for example, the contractor could be prosecuted and the donor of the gift would go scot free. Again, the giver of a gift seems to incur no penalty for “tempting” an “agent” with a bribe, unless he gives, agrees to give, or actually offers it. A mere attempt on the agent’s part is sufficient to convict him, but the party from whom the gift would come may, apparently, tempt the agent by hints and suggestions of a bribe so long as he don’t give it, agree to give it, or offer it, and yet escape free. It would appear that a mere hint or suggestion would not be sufficient to convict the maker of it unless it were put into execution, or a definite offer to do so was made. On the agent’s part it is almost certain that a hint or suggestion that a bribe would be acceptable would be construed into an attempt to obtain one, and such an action on an agent’s part would bring him within the meshes of the law.

As to the wisdom of the policy in making both the giver and receiver of the bribe equally liable, I shall say a few words at the end of this article.

Transactions Between Principals.

So far as I have dealt with the Act, it will be noticed that the two persons liable to prosecution under it are the corrupt giver and receiver. The next portion of the subsection I have been quoting is much larger in its scope. It makes it a criminal offence. “If any person knowingly gives to any agent, or if any agent knowingly uses with intent to deceive his principal, any receipt, account, or other document in respect of which the principal is interested, and which contains any statement which is false or erroneous or defective in any material particular, and which, to his knowledge, is intended to mislead the principal,” he shall be guilty of a misdemeanour, punishable by fine or imprisonment, or both, as above. This portion of the Act strikes, let us hope, a fatal blow to false invoices, bogus receipts, and incorrect descriptions, which, unfortunately, are of very frequent occurrence. Like the portion of the Act dealing with the giver of the gift, it is not confined in its application to acts by persons in a fiduciary relation towards the principal, any person who does the acts set out

is guilty of a criminal offence. The false or erroneous document must be given to the “agent,” and apparently it must be intended to be used to mislead the principal. When the agent uses the document so obtained to deceive his principal, his liability commences. “Any person” would, no doubt, include even a clerk or other employee. If he knowingly gives a false or defective document to an agent, knowing the purpose for which he intends to use it, he renders himself criminally liable. His liability seems to rise: (a) when he gives to an “agent”; (b) knowingly; (c) a document in which the principal is interested; (d) which contains any statement which is false or erroneous or defective in any material particular; (e) and which, to his knowledge, is intended to mislead the principal. The limits of my paper do not permit me to discuss each of these requisites in detail. Many knotty questions will, no doubt, arise upon them. What is knowingly? Was or was not the principal interested in the false document? Is the particular in which it is false, erroneous, or defective, a material particular? Had the giver knowledge of the purpose for which it was to be used? Any discussion on these points must be, more or less, of an academic nature until the courts have elucidated the matter. It appears to be pretty clear the giver of the false document can be prosecuted for merely knowingly giving it, whether or not the agent uses it for the purpose of deceiving his principal.

Agents and False Documents.

The agent’s liability, on the other hand, does not seem to arise until he “knowingly uses, with intent to deceive his principal,” the document so obtained. From this it would seem that while the obtaining of a false document renders the person so doing subject to no legal liability under the Act, yet the giver of the document becomes liable to the full penalty of the law. The words “knowingly” and “corruptly” are likely to prove the fruitful parents of much litigation. The entire Act is governed by them. Unless the acts complained of can be shown to be corruptly or knowingly done (as the case may be) within the meaning of the Act, no offence will have been committed. I stated in an earlier portion of this paper that “corruptly” will probably be interpreted as “secretly.” This needs a certain amount of qualification. *Cætris paribus*, mere secrecy would not be sufficient. There must be, so to speak, a guilty secrecy. In addition to the act complained of being secret or hidden from the principal, the spirit of the act would seem to indicate that the kind of secrecy which would be held equivalent to corruptly would be of a kind whereby the principal would be, financially or otherwise, injuriously affected by it, or, at any rate, that the act was done secretly with that intention, or that that would be the probable result. If mere secrecy was held to be equivalent to corruption, many untoward results would follow. For example, it sometimes happens that an agent or employee, anxious to ingratiate himself with his employer, often secretly gives a tip out of his own pocket to expedite his principal’s business. If secrecy and corruption were interchangeable terms he would be guilty of a criminal offence towards his principal. Obviously such a transaction, be it ever so secretly done, would not come within the purview of the Act, so far as the agent’s principal was concerned, nor would the receiver of the gift be in any way culpable if he were a principal, but if he bore the relation of agent to his (the receiver’s) principal, an offence under the Act would have been committed *prima facie*. On the interpretation given to those two words, the success or non-success of the Act stands or falls. It is in the hands of the jury, not of the judge, that its fate chiefly rests. It must always remain a question of fact as to whether or not a certain act or series of acts were done with intent to deceive, or whether or not a certain gift was made or consideration given “corruptly.” Questions of fact always lie with the jury, and to a jury the major portion of these cases will go, and with them it lies either to make the Act a success or a failure.

The General Effects of the Act.

It may impress the matter more deeply on the reader’s mind if I give a few examples of the effect of the Act. It is now criminal for any person acting for another or employed by him, or, generally speaking, in a fiduciary relation

towards him *corruptly* (which, qualified as above, practically means secretly), either to get or seek, or *attempt to get or seek*, from *any person*, for himself or for *any other person*, any gift or benefit for doing or not doing anything in relation to his employer's business, or even for showing, or forbearing to show, favour or disfavour to *any person* in relation to his employer's business. I intend to confine my remarks principally to the effect of the Act on architects, contractors, and persons with whom they have business relations as employee or as principal. It is a common occurrence in the building trade for the contractor to ask, and receive from the builder's provider, a certain discount or commission on the specified prime cost of certain articles, and for the vendor of the articles to mark them in his invoice at a figure which is supposed to represent their prime cost, but which ignores completely the secret commission or discount given to the contractor. The asking or obtaining such commission by the contractor, and the giving of same, and of a false invoice or account by the builder's provider, knowing that same will be used to deceive the architect or his employer, are all indictable offences which may result in a fine of £500 and two years' hard labour to both parties concerned. A contractor offering an architect a bonus for getting him a contract, or for overlooking bad work, etc., or an architect accepting such a bribe, are all criminal acts. The ordinary commission which builders receive, more or less secretly from the person from whom they buy their prime cost material, must now cease unless the principal is aware of it, and acquiesces in their action. After all, this is fair and just.

Prime Cost Prices.

Take, for example, a contractor in whose bill of quantities certain articles are priced £10 each, *prime cost*. Many houses allow him ten or twenty per cent. of a secret commission or discount off such prime cost. This the contractor puts in his pocket without the knowledge of his employer, although the latter has made him an ample allowance for the use of his money. A contractor usually sets down £5 per cent. for the use of his money expended on prime cost articles, yet, as a matter of fact, he very frequently receives sufficient money from his employer, under the architect's certificates, to defray all cash outlay and his wages bill without calling on his private resources. Moreover, in the majority of cases, even if he had to advance the money for prime cost articles out of his own pocket, he would not have to lie out of it longer than two or three months, yet he invariably charges interest for a year, which, at the rate of interest and under the circumstances I have stated, would amount to £20 per cent. I mention this merely to show that the contractor is well compensated for any cash advanced by him altogether outside of the secret commission which he will now have to forego. Again, in a number of cases the firms from whom the contractor purchases these articles allow him one, and sometimes as much as three months' credit, and still treat the transaction as one for cash. If, in addition to a secret commission or bonus to the contractor, he receives a discount for cash on prime cost articles, this should be handed over to the employer, otherwise the contractor is criminally liable. If the builder agrees to pay certain sums for certain articles *he must pay these sums*, and he cannot personally benefit by their purchase by secret discounts or commissions; and there appears to be no reason why it should not be so. The cardinal principles of the Act seem to be that when a man is paid for his services, or voluntarily agrees to do certain things, or otherwise stands in a position of trust towards his principal, he cannot, without his principal's knowledge and consent, reap additional benefit for himself, nor enrich or benefit his friends at his employer's expense; and any person who, by false receipts or otherwise, assists him in so doing is equally liable. This is as it should be. Any person affected by the Act can easily safeguard himself by stating openly on his contract that he, the agent or employee, "reserves to himself the right to demand, accept, and retain for his own use such commissions as he may specify." And, as a matter of precaution, it might be well to add the name of the person giving the commission and its amount. Persons adopting this course are altogether outside the provisions of the Act. No doubt when the

employer or principal sees what the contractor or agent is getting *in addition* to what he is paying him, and when he knows that all this additional money is indirectly out of his own pocket, he will very probably reduce the amount he is willing *directly* to pay. This contingency is unavoidable. There remains, however, the fact that all legitimate competitors are similarly handicapped, and the few daring ones who set the law at defiance will not profit much, as their very liberty will be in the hands of any person who is cognisant of their misdeeds. The contractor who makes open confession of his commissions will probably make due allowance for his candour by adding their value to his estimate. As there is practically always an irreducible minimum price at which any given work can be carried out so as to give a fair profit to the contractor, and as (save in exceptional cases) this minimum price is very nearly the same for all contractors, it therefore follows that all contractors who state what commissions they receive, or who hand them over to their principals, will be similarly affected. A contractor who formerly considered these secret commissions as a legitimate portion of his profit can do so no longer, but must compensate himself for their loss (if needs be) by increasing his estimate. I need hardly say the Act does not affect commissions, whether secret or open, *between principals*, or where an agent is acting as principal. Therefore it is still quite legitimate for a contractor to get any or what discount he can on material he was buying to carry out work for a principal, *when the prime cost of same is not specified*.

Clerks of Works, Foremen, etc.

Although I have in the main restricted my remarks to contractors and their employers, yet they apply equally to clerks of works, foremen, managers, clerks, and employees of all kinds, and the tipping which frequently bordered on blackmail, to which all of these persons have either been parties to, or victims of, must now cease, or, if still carried on, must be at the risk of heavy fine and imprisonment.

Although in one way this Act may adversely affect the building trade, yet in the long run I think it must operate beneficially. Even granting that by losing their secret commissions builders will be at an irremediable financial loss (which I doubt), the saving *they* will effect in tips to parties with whom *they* have to deal should amply compensate them. The architects, especially, should be benefited by it, as it will now be possible for them to give much better value to their clients than heretofore; and the builders will also benefit by the increased business which such better value will naturally induce.

In order to prevent the Act being used as an engine of petty spite, it enacts that no prosecution under it shall be instituted without the consent of the Attorney or Solicitor-General for England or Ireland (as the case may be), and that section 1 of the Vexatious Indictments Act of 1859 shall apply.

Not Retrospective.

Apparently the Act is not intended to be retrospective, and section 4 provides that it shall "*come into operation*" on the 1st January, 1907; yet section 1 contains certain penal clauses which deal with acts done "*after the passing of this Act*." The Act was passed on the 4th August, 1906. What does this mean? Is it that a person can be prosecuted for acts done by him after the 4th August, 1906, but that proceedings cannot be instituted until the 1st January, 1907. A similar peculiarity of phraseology occurred in the Irish Land Act of 1903. This Act was passed on the 14th August, 1903, but did not *come into operation* until the 1st November, 1903. In Clarke's Est. (4 N.I.J. Rep. 1) "agreements entered into after the passing of this Act" were held to mean agreements entered into after the 14th August, 1903. If one may argue by analogy, it would seem that a similar decision will be given if any case arises on that point in the Prevention of Corruption Act.

The draughtsman of the Act had a rather difficult task, to include and make criminal on the one hand all the protean shapes under which an "agent" might secretly or corruptly defraud his principal, and to punish all persons who aided and abetted him in so doing; and, on the other

hand, to leave untouched legitimate business discounts and commissions, and the small and harmless gifts and courtesies which business houses and individuals frequently give to those who deal with them. He evidently arrived at the conclusion that to achieve such a result would be an impossibility. He therefore adopted the course of framing the Act in such a way that it includes practically every commission of the class it deals with, to which the employer or principal is not a consenting party, and leaves it to the discretion of the Attorney or Solicitor-General to say whether a prosecution should or should not be had in any particular case.

A Questionable Feature.

There is one feature in the Act, the wisdom of which is very questionable. Everybody agrees that, in the majority of cases, the giver is equally guilty as the receiver. Yet, from a utilitarian point of view, it might have been better not to have included the former amongst the persons liable to be made amenable under the Act, as by doing so the difficulty of proof is enormously increased. When two parties to a crime are both equally guilty, and are liable to equal punishment in the eye of the law, common interest will keep both silent. The difficulty could have been got over in several ways, one of which would have been to have made the possession of a sum of money or a gift by a party who could be proved to have received it from some person with whom he was dealing on behalf of a "principal" sufficient to throw the burden of proof on him to show that the gift was *not* given in respect of his (the possessor's) principal's business. To do so, however, would be to do violence to one of the most cherished maxims of the British Law—"That every man shall be presumed to be innocent until he is proven guilty." *En passant*, I may say I fear that maxim is frequently infringed. If a tramp is found in possession of a valuable gold watch, for the possession of which he cannot account, the law does not let a Quixotically chivalrous application of the maxim stand in the way of justice. Although very possibly the Act will not effect all one would desire or expect from it, yet it will, no doubt, exert a wholesome deterrent effect and achieve a considerable measure of success.

CHAPTER 34.

An Act for the better Prevention of Corruption.

4th August, 1906.

Be it enacted by the King's most Excellent Majesty, by and with the advice and consent of the Lords Spiritual and Temporal, and Commons, in this present Parliament assembled, and by the authority of the same, as follows:—

- 1.—(1) If any agent corruptly accepts or obtains, or agrees to accept or attempts to obtain, from any person, for himself or for any other person, any gift or consideration as an inducement or reward for doing or forbearing to do, or for having after the passing of this Act done or forborne to do, any act in relation to his principal's affairs or business, or for showing or forbearing to show favour or disfavour to any person in relation to his principal's affairs or business; or

If any person corruptly gives or agrees to give or offers any gift or consideration to any agent as an inducement or reward for doing or forbearing to do, or for having after the passing of this Act done or forborne to do, any act in relation to his principal's affairs or business, or for showing or forbearing to show favour or disfavour to any person in relation to his principal's affairs or business; or

If any person knowingly gives to any agent, or if any agent knowingly uses with intent to deceive his principal, any receipt, account, or other document in respect of which the principal is interested, and which contains any statement which is false or erroneous or defective in any material particular, and which to his knowledge is intended to mislead the principal, he shall be guilty of a misdemeanour, and shall be liable on conviction on indictment to imprisonment, with or without hard labour, for a term not exceeding two years, or to a fine not exceeding five hundred pounds, or to both such imprisonment and such fine, or on summary conviction to imprisonment, with or without hard labour, for a term not exceeding four months, or to a fine not exceeding fifty pounds, or to both such imprisonment and such fine.

- (2) For the purposes of this Act the expression "consideration" includes valuable consideration of any kind; the expression "agent" includes any person employed by or acting for another; and the expression "principal" includes an employer.
- (3) A person serving under the Crown or under any corporation or any municipal borough, county, or district council, or any board of guardians, is an agent within the meaning of this Act.
- 2.—(1) A prosecution for an offence under this Act shall not be instituted without the consent, in England of the Attorney-General or Solicitor-General, and in Ireland of the Attorney-General or Solicitor-General for Ireland.
- (2) The Vexatious Indictments Act, 1859, as amended by any subsequent enactment, shall apply to offences under this Act as if they were included among the offences mentioned in section one of that Act.
- (3) Every information for any offence under this Act shall be upon oath.
- (4) The expenses of any prosecution on indictment under this Act shall be defrayed as in cases of indictment for felony.
- (5) A court of quarter sessions shall not have jurisdiction to inquire of, hear, and determine prosecutions on indictments for offences under this Act.
- (6) Any person aggrieved by a summary conviction under this Act may appeal to a court of quarter sessions.
3. This Act shall extend to Scotland, subject to the following modifications:—
 - (1) Section two shall not extend to Scotland;
 - (2) In Scotland all offences which are punishable under this Act on summary conviction shall be prosecuted before the sheriff in manner provided by the Summary Jurisdiction (Scotland) Acts.
- 4.—(1) This Act may be cited as the Prevention of Corruption Act, 1906.
- (2) This Act shall come into operation on the first day of January, nineteen hundred and seven.

OUR ILLUSTRATIONS.

Institute Prize—Design for a Branch Bank.

In our present issue we publish one of the four designs submitted for the Institute prize in the competition promoted by the Architectural Association of Ireland. The conditions issued in the Green Book of the Association gave a clear and concise statement of the accommodation required, and stipulated the cost limit at £5,000. This provision proved beneficial by restraining within reasonable limits the ambitious efforts of the competitors, with the result that the designs possess no eccentricities of treatment one usually associates with competitions of this nature.

Our illustrations show the scheme submitted by Mr. P. J. Munden. The ground plan provides a well-proportioned banking hall, giving ample space for the public and sufficient length of counter to accommodate the different officials. The subsidiary rooms are arranged conveniently and economically, and show considerable grasp of the essentials of banking administration. The inter-communication between manager's office, banking hall, and public space is admirably managed. The Renaissance style has been adopted for the principal elevations, this style giving the necessary touch of dignity whilst allowing sufficient freedom of treatment.

Mr. Munden's design is well proportioned and carefully developed; the materials proposed are granite and pressed brick, and this combination of colour, in conjunction with the light and shade inseparable from this class of design, should prove a success in execution.

Absence of space prevents us dealing with the remaining designs, but in passing we would express a hope that future competitions promoted by the Association will receive greater support by the younger members of the profession.

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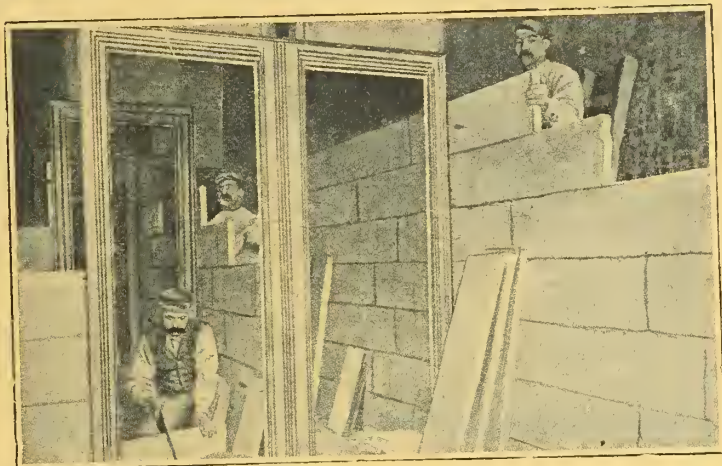
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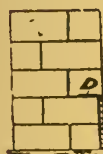
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CONTENTS.

	PAGE.
Topical Touches	45
Our Northern Letter	46
The Prevention of Corruption Act, 1906, and its Bearing on Architects, Engineers, Builders, etc.	49
Our Illustrations	54
LEADING ARTICLE:—	
Architect and the Labourers Act	56
COMMENTS:—	
Dangerous Structures	58
The New Conditions of Contract of the Royal Institute of Architects	58
The Dublin Water Supply	59
"Labourers' Cottages and Irish Architecture."—A Gaelic Criticism	59
Building News	60
Engineering Items	65
A Belated Report—The Title of Architect	66
A Competition	69
A Useful Fire-Escape	70
Imports	70
Architectural Association of Ireland Jottings	73
The Manufacture of Clerks of Works	73
The Workmen's Compensation Act	73
The Standard Smoke Test Machine	74

ARCHITECT AND THE LABOURERS ACTS. ALLEGED IRREGULARITIES.

Last week the Local Government Board, in a letter to the Rural District Council of Rathkeale, County Limerick, communicated the report of their inspectors, Messrs. John Coffey, J.P., and A. D. Price, M.I.C.E., who had jointly held an enquiry into certain allegations of irregularities in the relations subsisting between the architect, Mr. Hartigan; the clerk, certain of the Councillors, and the contractors for labourers' cottages. Our readers will remember that on the occasion of the enquiry being held, certain decidedly grave irregularities were acknowledged by the engineer and the clerk. The engineer admitted to certifying for work he had never seen, and to submitting to external pressure from sundry Councillors who were interested in certain of the contractors, or had unduly friendly feelings towards them. The L.G.B. showed their appreciation of the gravity of the issue involved to the two officials referred to by appointing not only Mr. Price, himself an engineer, but sending also Mr. John Coffey, J.P., admittedly one of the ablest and most impartial inspectors in the service of the Board, to hold the enquiry. These gentlemen enquired exhaustively into all the circumstances, and their report, as furnished to their Board, was communicated to the District Council on the 16th inst.

The report pointed out "that as regards the engineer (Mr. Hartigan) it was evident, on his own admission, that he thoroughly failed to realise the responsibility attaching to his position in regard to the issue of certificates for payments to contractors, by accepting the statements of others as to the execution of works which he had not himself seen, and by certifying for payments

at the instance of individual members of the Council. He exhibited a lamentable lack of firmness and independence ordinarily to be expected from a professional officer responsible for the payment of large sums of money out of public funds. His action in connection with these contracts renders it impossible for the Board to acquit him of culpable negligence, but as it has not been shown that he derived any pecuniary benefit from the irregular transactions in question, the Board are willing to afford him an opportunity of tendering his resignation to the Council. So far as the responsibility of the Clerk of the Council for the existing condition of affairs was concerned, the report went on, the Board desired to observe that the clerk had shown himself to be indifferent as to the manner in which the duties of his office were discharged. He kept no entry in the columns provided for the purpose in the Labourers Acts ledger of the alteration of sites. He stated also that he directed the Council's solicitor to discontinue legal proceedings against a contractor, although he kept no record in the minutes of the order of the Council authorising him to do so. The inspector repeated that he showed want of knowledge of what took place at meetings of the Council, and that during the last two days of the inquiry he was unable to afford information on certain points, although he had previously been given notice that he would be required to supply the necessary particulars. In the circumstances, the clerk should be called upon by the Council to tender his resignation of the office of Clerk of the Council and Executive Sanitary Officer."

The facts are unquestioned, and the Board took the only course open to them on the report of their responsible inspectors. The Council have taken a more lenient view, and we are unwilling, notwithstanding the public interest of the matter, to make any comment which would, in the remotest degree, or by any chance, influence the ultimate judgment of any member of either body, directly or indirectly. Nevertheless, the subject matter is of such large moment to the public and to architects that we feel justified in making a few remarks.

As we have said, no other course seemed to be open to the Local Government Board than that which they have taken, but whether they may not now, having declared by their decision their strong disapproval of such methods of procedure, follow the example of the local Council and "temper justice with mercy," and give the officials concerned one more chance, is entirely a matter for their own judgment as a Board charged with a very serious public duty; still we think that as this is the first case of this kind in which a strong stand has been made by the Board, that they might possibly, having recorded their judgment, make a "first offender's" case of it, and allow the matter to drop on promise of reform, as it is unlikely that after so serious a warning either clerk or engineer would again offend.

In saying this, we are not minimising in the slightest the gravity of the offence, and we only contemplated the course outlined because of the fact that, unquestionably, similar practices prevail largely throughout Ireland, in more districts than is generally supposed, and that in all probability the engineer in question was as much "sinned against as sinning."

Of course the decision of the L.G.B. is not only in favour of the ratepayers and for their protection, but also for the protection of architects and engineers who are striving to do their duty honestly, and resisting, sometimes to their own pecuniary detriment, similar

influences. Still it seems hard to make a special example of these particular individuals, wrongly as they may have acted, when it is admitted that they received no pecuniary benefit. Of course, had they received any benefit, we should certainly not suggest the slightest modification of the very just, and in fact even lenient decision which, instead of ordering instant dismissal, gives the parties the opportunity of resigning.

Of course, in regard to any subsequent case, punishment should be swift and sure, or else a grave injustice to honest engineers would be committed, and a premium put on dishonest practices.

The inspectors admirably sum up the engineer's default, when they say that he "showed a lamentable lack of firmness and independence *ordinarily* to be expected from a professional official." Such an independence is every day in the week, we are glad to think, exhibited by the vast majority of engineers and architects in this country, not only in public, but in private works—too frequently, alas, to their own detriment—a serious consideration to poor men, as most of them are. Still, possibly, the Local Government Board might not greatly weaken their power for good by, in this one single instance, falling in with the views of the local body, as the case has gained a large amount of publicity, and will serve its purpose as a severe warning to others. We are sure it was no pleasant duty to Mr. Coffey and his confrere to make the report they did, and in any event it will serve its purpose. We regret to observe, however, that the men who most deserve punishment escape. Those Councillors who, wholly wanting in any sense of decency and duty to the public they are supposed to represent, only used their positions for their own ends to tempt an unfortunate official from his duty. Some superior authority ought to be given powers to debar such men from continuing to act as Councillors.

COMMENTS.

Dangerous Structures.*

Mr. G. H. Blagrove's first edition of "Dangerous Structures" is now very well known, and it is needless to enlarge upon its general utility. The little work contains a vast amount of very useful information regarding the strength of the various materials and substances used in building.

The author has evidently gone to some pains to arrive at formulæ, based upon practical experience rather than upon the empirical statements of others. Some references to legal decisions are also appended.

In detail, the author sub-divides his subject under the respective headings of: foundations, walls, piers, arches and vaults, beams, girders, and floors, struts, columns and stanchions, ties, roofs, and framed structures, lofty structures, and also shoring. Altogether the work is a very useful one, though it is not unfair to say that it might easily have been made much more useful than it is.

A large amount of space is devoted to the London Building Acts. Party walls are dealt with, but in a fashion not completely satisfactory.

In considering the question of footings, the author points out the extreme weakness of brick footings where projecting, to which may be added their great liability to decay. In passing, the author makes a curious commentary on the requirements of some local authorities, when he says—"In underpinning a wall which has a failing foundation, it will be advisable to put in a bed of concrete, thick enough to distribute the weight over a sufficient area, without relying upon the brick foot-

ings, which may be put in to satisfy the Building Act, or local bye-laws!"

The only reference to modern practice in regard to the use of reinforced concrete for foundations, which has been in fairly general use in France and America for many years, and in these countries for quite a good while, is some description of a steel grillage, in which the greater body and thickness of concrete is below the steel work, and left without any reinforcement, the beams being laid on top of a bed of concrete, then tied together and filled in between with concrete; on top of this another similar raft is laid, but with the joists at right angles to those below. This method may be a remarkably efficient and durable one under certain conditions, but can hardly be described as very economical or up-to-date, as the concrete and the steel are utilised not as one, but as two separate materials, and the steel work is insufficiently protected. In the light of recent practice in ferro-concrete work, the old-fashioned method of embedding old railway rails in a body of concrete, which we saw in use more than once in Irish country work, quite eighteen years ago, is the more economical of the two. The whole effect of recent practice and developments of patent systems in ferro-concrete is to largely base their claims to consideration in such cases on the proper treatment of tension and compression, and the placing of the steel where it will best and most economically reinforce the concrete to resist those forces. The application of ferro-concrete to underpinning has, of course, hardly been developed at all, though there seems to be no reason why it should not be of great utility for this purpose. We know of one instance in Ireland where such a scheme, on a small scale, was outlined by the New Expanded Metal Company, of London, but, unfortunately, never carried out.

In dealing with walls—with particular reference to party walls—the author describes that method of restoring the stability of walls which incline out of the perpendicular, by means of thickening upon the side which overhangs and block-bonding the new work to the old, which is hardly so well known and practised in this country as its utility would warrant.

The New Conditions of Contract of the Royal Institute of Architects.

The Hon. Sec. of the Royal Institute of the Architects of Ireland has issued a circular letter to the members, in which he states that:—

The Council have had before them a letter from the Hon. Secretary of the Master Builders' Association asking that the new conditions of contract, lately adopted by the Institute, should be set aside.

I am instructed to inform you that the following resolution was unanimously adopted:—

Resolved—That this Council advises the general body of members of this Institute to recommend their clients, in their own interest and that of the builders, to adopt for the present the conditions of contract as recently revised under the advice of eminent counsel and passed by the members of this Institute. If it be found desirable after a fair and equitable trial of the working of the conditions, that they should be modified in the mutual interests of the employer and builder, the Council will be prepared to re-consider them.

As we have several times pointed out, it is not to be wondered at that the members show a decided disinclination to make use of these new conditions of contract. They are involved, obscure in meaning, and, to some extent, contradictory, as well, at least, twice the length they ought to be; and in spite of all this the builders are not satisfied with the opportunities for litigation thereby afforded them! As to their having been revised under counsel's advice, it was not really counsel's business to cut them down or render them more workable—that was the business of the draftsmen. Very eminent counsel described the old conditions as "the fruitful parents of much litigation," an opinion shared by most of the lawyers we have come across.

We hope at an early date to publish an exhaustive detailed legal criticism of the Institute conditions, together with the draft of a suggested form of contract,

* "Dangerous Structures and How to Deal with Them." By G. H. Blagrove. Second edition. 5½ ins. by 8 ins. 1906. 4/6 net. London: B. T. Batsford.

short and clear. This article will be specially written for us by a lawyer who has made a special study of building contracts, and his suggestions will take alternative forms, with and without an arbitration clause—as many Dublin architects, and most of the provincial architects, do not use, and never have adopted, the arbitration clause, which, in the old conditions, were found only the other day by two of the most eminent counsel at the Irish Bar to be almost unintelligible.

The Dublin Water Supply.

In another week the time will have elapsed for the resumption of the adjourned enquiry into the proposal of the Dublin Corporation to enlarge and improve the Dublin waterworks system. The enquiry opened by Mr. P. C. Cowan, L.G.B., was adjourned for the purpose of reconsidering certain details, and for putting forward additional particulars. Certainly, so far as the newspaper reports disclosed, the amount of information both as to the necessity, and as to the methods by which the Corporation proposed to meet them, were by no means commensurate with the importance and cost of the project; neither was it explained how its cost had risen from £65,000 to £146,000. In adjourning the enquiry, Mr. Cowan observed that:—

There was a doubtful item of 9,000 yards of rock excavation variously estimated at 7s. 6d., 10s., and 30s. a yard, on which a further large saving might be effected. Having regard to that, it appeared to be of the most vital importance, bearing in mind that the estimate had risen from £65,000 to £146,000. There were various points. He would just raise one to indicate what was running through his mind. The old Vartry reservoir still was six feet below the top of the bank; but at some time soon after the reservoir was constructed a foot was put on it by means of planks; that was to say, that the margin as regards storage was reduced from 6 feet to 5 feet, and Mr. Harty said it had been found satisfactory for more than 35 years. In this new design the engineer proposes a 6 feet margin again. Evidently one of two things might be done—either lower the whole structure and leave 5 feet margin, or leave 5 feet margin and gather another foot of water in the reservoir.

"Labourers' Cottages and Irish Architecture."—A Gaelic Criticism.

In its current issue *An Clárdeam Soluip* says—We gladly endorse this protest of a well-known Gael on a matter which, if not wholly germane, is not entirely foreign to the many-sided programme of *Connradh na Gaedhilge*:—"Arrangements are being made to erect a number of labourers' cottages over the country. If we are to judge by those already built, we may expect a number of dwellings whose architecture will lead us to think we have strayed into the outskirts of some English manufacturing town. The cottages of the past have a distinctive character—the yellow roof, the gleaming whitewashed walls, the roomy kitchen with its comfortable corner near the hearth. The new cottages have rough-plastered walls, which are without the saving grace of the bright lime-wash; they have no beauty, they do not fit in with the landscape. As to their comfort, the dwellers complain of the cold of the upper room, of the cheerlessness of the kitchen. Is the whole face of the country to be changed, or will an architect of the Gael arrive to take the matter into hands? The revival of Celtic architecture for the churches came too late. The churches were all nearly built. Will the pioneer of house architecture for the Gaels come too late also?"

The rates of Dublin and some of the surrounding townships are deplorably high, and some of the macadamised roads in the city and in Rathmines are in a state that would disgrace the interior of China; for example, see the condition of Adelaide Road, Lower Hatch Street, Granby Row, knee-deep in mud after a night's rain. The thorough and complete remaking and steam rolling of many of the Dublin roads is a thing which cannot be very long delayed, and we trust the Corporation will bear this in mind when determining the outlay on other vast projects, howsoever necessary they may be.

IRISH LABOURERS' COTTAGE COMPETITION.

The competition instituted by the Local Government Board for Ireland for three prizes for designs of labourers' cottages most suitable for rural districts has resulted as follows:—

First prize (£50)—Sydney Moss, Rockbank, Eccles, Lancashire.

Second prize (£30)—J. Roseman Burns, 17 Serpentine Avenue, Ballsbridge, Dublin.

Third prize (£20)—T. M. Deane, 15 Ely Place, Dublin.

LITHONITE.

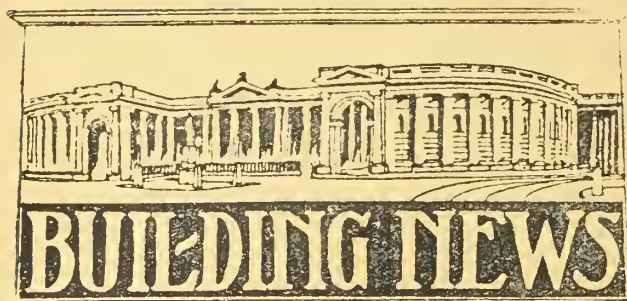
This is the name given to a sheet asphalt for flats, garden, and mansard roofs and similar purposes. It is claimed for the Lithonite Sheet Asphalt that it is a system of flat roofing possessing many advantages over the complicated and expensive forms at present necessary where flat surface is required. This claim is based on long experience it, having been found that Lithonite successfully replaces rock asphalt and metal coverings. No drips or rolls are required and the excellent results obtained prove it to be thoroughly reliable in every way. Briefly, the system consists of alternate layers of Lithonite Sheet Asphalt and Lithonite Mastic, forming a homogeneous and durable mass impervious in all weather. This permits the construction of a roof area which can be utilised as a garden, recreation ground, or for any other purpose that may be desired. Amongst the advantages claimed for the system are the following:—(1) Moderate cost, a Lithonite roof showing an appreciable saving over other asphalts and metal coverings; (2) lightness; (3) indestructibility, imperviousness to weather, incombustibility, and non-conducting properties; (4) economy of timber, space, and labour; (5) equal distribution of weight, reducing lateral thrust to a minimum; (6) elasticity, adjusting itself to expansion and contraction; (7) adaptability to timber or concrete construction, to mansard and existing roofs. Lithonite also complies with the bye-laws of all Municipalities and Urban District Councils, and has the approval of leading architects and engineers. The makers, Messrs. Engert and Rolfe, Ltd., Poplar, London, E., will be happy to supply any information that may be desired relating to the system, detailed drawings, estimates, etc., as well as a sample section of Lithonite Sheet Asphalt. It is necessary when asking for estimates to state whether the roof is of timber or concrete construction, and to give full particulars as to parapets and surrounding walls, eaves, newels, railings, and other constructional features.

Tree within a tree. The "Hereford Times" has published a picture of an exhibit at the Forest of Dean Forestry Museum of the cross section of an oak tree showing heartwood in the centre, surrounded by sapwood in the usual way. The curious thing, however, is that outside this sapwood is a second layer of heartwood, which is again surrounded by sapwood, with bark outside all. The inner tree is entirely separate from the outer tree, so that there is exhibited the extraordinary phenomenon of one tree growing within another.

Slowly, but surely, the pine forests near Bournemouth are vanishing. In its early stages the town was made up of fir plantations, but many of them have had to be cut up to keep pace with building operations. Some millions of pines remain in and around the town, but recently one of the prettiest pine walks in the borough, known as "The Fisherman's Walk," has been practically ruined by the cutting down of numerous fir trees to make room for shops and small villa residences. It is only fair to state that the Town Council and many private owners make praiseworthy efforts to repair the loss by planting young firs wherever possible.

Boyle.—Mr. M. M'Dermott, Ballinameen, has been elected engineer to the No. 1 District Council.

Listowel.—The Rural District Council will, on the 31st inst., elect an engineer and architect for the proposed scheme of cottages under the Labourers' Act.



Armagh.—The scheme for the new artisans' dwellings is now well advanced. It consists in the erection of 55 three-roomed houses. Mr. M'Kenna, Armagh, is carrying out the work under the supervision of Mr. F. Bergin, B.E. Mr. M'Kenna's tender was £6,197 9s.

Athenry.—A meeting of those interested in the building of a Town Hall for Athenry was held recently. A considerable amount of correspondence between the secretary to the committee and the Board of Agriculture was read with reference to a grant for the building of the hall, and the last communication was read as follows:—"Sir—Adverting to your letter of the 24th ultimo, I have to acquaint you that the Department of Agriculture have had before them the amended proposals of your committee in regard to the erection of a hall in Athenry, and to state that in compliance with the request of trustees the Department are prepared to advance on loan a sum not exceeding £600 in aid of the project. The conditions attached to this offer are as follows:—(1) That all the regulations of the Department's scheme of loans for the erection of village halls, including No. — (inadvertently referred to as No. 3 in Department's letter) are strictly complied with in every respect. (2) That the loan shall be paid in twenty annual instalments of principal, with interest at the rate of 2½ per cent. on outstanding balances. Regulation No. 9 of the scheme to be amended accordingly. I have to add that in the event of the above loan being accepted, the Department will agree to the value of the free site being deemed sufficient, local contribution to comply with conditions Nos. 2 and 6 of the scheme referred to. A copy of application form (a 130), issued in connection with the scheme is enclosed herewith, and it is requested that you will be so good as to fill in the particulars required, and when complete return to these offices.—Yours, etc., T. P. Gill." It was decided to accept the £600 on the conditions specified.

Athlone.—The Council of the Athlone No. 2 Rural District invite proposals from persons competent under Rule 50 (1) of the Labourers (Ireland) Order, 1906, to act as architect, engineer, or surveyor under the Labourers (Ireland) Acts. Proposals to be lodged to-day (Saturday), the 26th January.

J. J. Fitzgerald Monument.—The Memorial Committee of the above invite designs from sculptors for the proposed monument to be erected to the memory of the late J. J. Fitzgerald, B.A. (R.U.I.). The monument to consist of a bronze bust with suitable pedestal, with insertion of a bronze figure relief of an Irish emblem, and space for inscription. Cost not to exceed £300. All designs to be sent in on the 1st February, 1907.

Belfast.—We hear that a syndicate in the city contemplates erecting a large spinning mill in Belfast.

Balrothery (Co. Dublin).—Mr. M'Cabe, L.G.B. Inspector, held an inquiry, which lasted many days, into a very extensive scheme promoted under the Labourers' Acts. Mr. Anthony Scott, M.S.A., is the architect.

Cashel.—Tenders were received for works to be done to the Parish Church, Cashel, for the Very Rev. Dean Kinane, P.P., from the plans and specification prepared by Samuel F. Hynes, F.R.I.B.A., 21 South Mall, Cork, and under his superintendence.

Co. Kerry.—Separate tenders are invited by the Rev. J. Browne, P.P., Glenflesk, Co. Kerry, for the following works:—(1) Extension of Barraghduff Church, (2) additions and repairs to the presbytery, (3) improvements to Glenflesk Church. Plans and specifications prepared by Samuel F. Hynes, Esq., architect, Cork. All tenders must be handed in before the 31st January.

Cork.—Tenders are invited for the completion of works at the houses Nos. 17, 18, and 19 Sheares-street, Cork, in accordance with plans and specification of James F. M'Mullen, M.R.I.A.I., architect, 30 South Mall, Cork, with whom sealed tenders are to be lodged on or before the 26th inst.

Drimoleague.—At a meeting of the guardians of above it was decided to invite engineers to submit plans, with specifications, quantities, and prices, for a dispensary residence proposed to be built by this Board in the Drimoleague Dispensary. Residence, out-offices, fencing, etc., not to exceed £600. Plans to be submitted to the Local Government Board. The person whose plan is finally approved of and adopted to receive a prize of £5.

Dublin.—Mr. J. F. M'Cabe, Local Government Board Inspector, held an inquiry in the boardroom of the workhouse, North Dublin Union, with reference to the proposed scheme of the Rural District Council for erecting 64 labourers' cottages in the district under their control, the estimated cost of which is £12,800.

The District Council of the South Dublin Rural District have lodged with the Local Government Board for Ireland an application for an order confirming an improvement scheme made by them under the Labourers' (Ireland) Acts, 1883 to 1906, at an estimated cost of £11,130. Mr. Robert P. Fitzpatrick, Inspector of the Local Government Board for Ireland, has been appointed by the Board to hold a local inquiry as to the propriety of confirming such scheme. The inquiry will be held in the boardroom of the South Dublin Union Workhouse on Monday, the 28th day of January.

Mr. Geo. T. Moore, 1 Foster Place, is at present preparing plans and specifications for a new garage for James O'Connor, Esq., B.L., Morehampton road, Dublin, and tenders will shortly be invited.

Messrs. G. W. Scott and Co.'s tender of £1,048 has been accepted for additional buildings to the American Boot Co.'s premises in Grafton Street. Mr. Geo. T. Moore, C.E., A.R.S.C.I., architect.

Four houses in Sandymount, the property of Mrs. Caraher, will shortly undergo alterations. The designs and specifications are in the hands of Mr. Geo. P. Sheridan, A.R.I.B.A., Suffolk Street, and tenders will shortly be invited.

Large additions are at present in progress at the University College in the shape of class-rooms, etc. The designs are by Mr. F. Bergin, B.E., 36 Westmoreland Street, Dublin. Alderman Doyle is carrying out the work.

Donaghadee.—At a meeting of the district chapel sub-committee a letter was read from the Rev. F. A. Trotter, of Donaghadee, regarding the proposed new church in the town. On the motion of the Rev. R. Cole, seconded by Mr. W. J. Jefferson, J.P., a resolution was passed approving of the scheme, and expressing the opinion that the work should be proceeded with as soon as possible. Plans and specifications in connection with Salem Church, York Street, Belfast, at a cost of £2,000, were submitted by the Rev. Wm. Maguire, and were approved of on the usual conditions.

Dalkey.—The Dalkey Urban District Council have applied to the Local Government Board for Ireland for a Provisional Order confirming an improvement scheme made under Part I. of said Act by the local authority in respect of an unhealthy area in the vicinity of Castle street, Molloy's Lane, and Greenmount Lane, all in the Urban District of Dalkey. The Local Government Board have directed a local inquiry to be held for the purpose of ascertaining the correctness of the official representation made as to the area, and the sufficiency of the scheme provided for its improvement, and any local objections to be made to such scheme. In pursuance of the provisions of the said Act, Mr. A. D. Price, M.Inst.C.E., having been duly appointed, will hold the inquiry at the Town Hall, Dalkey, on the 28th day of January, 1907.

Julianstown.—Messrs. M'Laughlin and Harvey's tender has been accepted for the erection of a tower and spire at Julianstown Church, lengthening church and other alterations. The following tenders were received:—M'Laughlin and Harvey, £2,170 (accepted); John Pemberton, £2,476; H. Pemberton, £2,295; Collen Bros., £2,290; J. Smullen and Son, £2,178; J. Donovan and Son, £2,160; S. H. Bolton and Son, £2,100; C. J. Crampton, £2,090; H. Henly, £1,873. Plans and specifications for above were prepared by Mr. J. F. Fuller, F.S.A., 179 Great Brunswick Street. Quantity surveyors, Messrs. Patterson and Kempster.

Kingstown.—The following tenders were received in connection with the plumbing and gasfitting of the new Technical Schools, Kingstown, designed by Mr. Geo. T. Moore, 1 Foster Place, Dublin:—T. W. Little, £485 3s (accepted); C. Jolly, £501; C. M. Namara, £506 5s. 6d.; Maguire and Gatchell, £533 9s. 6d.; Dowd and Son, £546 12s. 6d.; John Kennedy, £575; T. Dockrell, Sons and Co., Ltd., £592 10s. 9d. For the heating arrangements—Musgrave and Co., Ltd., Belfast, £142; Maguire and Gatchell, £160 (accepted); ditto for additional work, £54.

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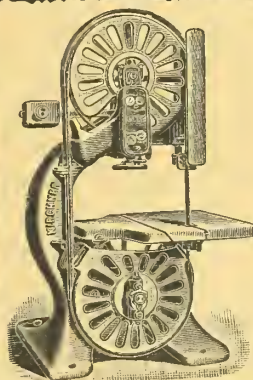
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THE MANAGER.

Kenmare.—The Council of this Rural District invite proposals from persons competent under Rule 50 (1) of the Labourers' (Ireland) Order, 1906, to act as architect, engineer, or surveyor under the Labourers' (Ireland) Acts. Proposals to be lodged to-day, the 26th January.

Longford.—Tenders are invited for the erection of a tower and spire to the Catholic Church at Edgeworthstown according to the designs and specification of Messrs. Ashlin and Coleman, Dawson Street, Dublin. Tenders close 21st February.

A new wing and a large range of stabling and offices are being added to "St. Albans" for John Wilson, Esq., solicitor. The work has been entrusted to Mr. W. A. Coote, of Longford.

Lusk.—At a meeting of Lusk Rural Library Committee the secretary reported that all the legal formalities in connection with the acquisition of the new site were successfully got through. It was decided to ask Mr. Carnegie to kindly raise the sum offered to build the library, from £400 to, say, £800. Plans for such a building on the hypothesis of this sum being forthcoming are already prepared, and will be forwarded with the title of site to Mr. Carnegie.

Limerick.—Mr. John Quin, builder, deceased, of Convent-street of this city, left assets to the amount of nearly £3,000. His will, being tested by the Probate Court, resulted in giving to the Rev. Denis Shanahan the sum of £1,300, to be divided as follows:—£800 for a high altar and £500 for one to the Blessed Virgin, both to be erected in St. Mary's Catholic Church, Limerick, of which the Rev. Father Shanahan is pastor.

Mullingar.—The tender of Mr. W. A. Coote, Longford, has been accepted for the extensive additions and alterations to Levington Park, for C. E. Levinge, Esq., and a large staff of men are at present engaged at the works. Messrs. Doolin, Butler, and Donnelly, Dawson Chambers, Dawson-street, Dublin, are the architects.

Magherafelt.—The Council of this Rural District received proposals from architects, engineers, or surveyors to perform the duties as laid down in Article 51 of the Labourers' (Ireland) Order, 1906.

Milford.—The Council of this Rural District invite proposals from persons competent under Rule 50 (1) of the Labourers' (Ireland) Order, 1906, to act as architect, engineer, or surveyor under the Labourers' (Ireland) Acts. Proposals to be lodged not later than Saturday, the 9th February, 1907.

Monaghan.—At the monthly and quarterly meeting of this Urban Council a letter was read from Mr. W. F. Barry tendering his resignation of the position of town surveyor. The resignation was accepted, and regret was expressed that Mr. Barry should sever his connection with the Council owing to his appointment as county surveyor of Sligo.

Portumna.—The Council of this Rural District will to-day (the 26th instant) appoint an engineer to carry out a scheme under the Labourers' (Ireland) Act, 1906.

Poulfur.—Father Kinsella, the curate of Poulfur, is endeavouring to raise funds to erect a new church at Poulfur to replace the present dilapidated structure. In a couple of years, it is hoped, sufficient funds will have been realised to warrant building preparations being commenced.

Tralee.—The preparations are going on concerning the building of the new Post Office, Mr. Patrick Murphy being declared contractor. The cost is about £6,000.

Urlingford.—The Board of Guardians of this Union received tenders for supplying and erecting a boiler for fever hospital.

LAW CASE.

LIMERICK ASYLUM.

At a meeting of this Asylum Committee a letter was read from Messrs. Rooke and Rooke, solicitors, Dublin, with reference to the claim for £77 10s. by Mr. Bachelor, architect, in connection with the preparation of plans and specifications for the drainage works recently carried out at the asylum, and respecting which there have been various desultory discussions at the Board. If the amount were not paid by the committee, Messrs. Rooke asked to have the Asylum Committee name a solicitor on whom they could serve a writ. Mr. Counihan, solicitor to the Board, wrote:—"Having made further inquiries with reference to the above since your last meeting, I obtained some information and a copy of a minute of committee, which, if I had before me previous to writing on the above question on 11th December last, I believe would have caused me to modify my opinion which I then gave on the question. Under all the circumstances, and having regard to the fact that a serious question of law is involved, and if proceedings are taken, counsel will have to be engaged and his opinion obtained, I think it would be just as well to have counsel's opinion on the entire question and its surroundings for the guidance of your committee and myself. Therefore, I would be glad if you would give directions, or have a resolution passed, to have counsel's opinion taken, and to have your clerk communicate with me after the meeting, with the copy of the minute or resolution, and send me all papers, resolutions, etc., directly or indirectly referring to or bearing on the question." Mr. Feheeney thought Mr. Counihan should have given that advice the last day. Mr. Frost explained that Mr. Counihan learned that Mr. Batchelor submitted the plans, etc., to Messrs. O'Meally and Brown, the engineer and architect, and, therefore, there was a continuity which debarred the three months' rule from applying. It was agreed to take the opinion of counsel, and on the suggestion of Mr. O'Malley Mr. P. Kelly, B.L., was named.

FIRE RISKS.

We have frequently commented in these columns on the gross carelessness with regard to precautions against the spread of fire shown by builders, sawmill owners, and merchants generally in Ireland, especially in the provinces. In the cities there are, of course, the Fire Brigades, but even these do not eliminate the necessity for the adoption of private fire-extinguishing appliances. That this is particularly the case in sawmills is illustrated by the recent conflagration at New Barnet. Here was a fire which originated while the workmen were about, and, therefore, the circumstances were quite different to a fire while premises are devoid of human beings. Nevertheless, the flames made rapid progress for want of means at hand by which a water-hose could be immediately brought into play. In a sawmill a few hydrants and hose should always be ready for service and maintained in efficient condition. But the fact is that builders, sawmill owners, and timber merchants are, in the vast majority of cases, totally indifferent to such precautions. They complain about high insurance premiums, but forget that fires on their premises are extremely likely to entail great, if not total, loss. The New Barnet fire will, no doubt, instigate insurance companies to maintain the high rates, and so long as property owners neglect the adoption of measures to secure the prompt attack of a fire (which is really one of the best examples of the stitch in time that saves nine) they cannot expect any abatement in their premiums.

ANSWERS TO CORRESPONDENTS.

Builders' Prices.

Enquirer.—Rea's "Analysis of Prices," published by B. T. Batsford, explains the principles and methods of pricing very clearly. Published by B. T. Batsford, 94 High Holborn, London.

Laxton's "Builders' Price Book" gives a large variety of current builders' prices in London, which can be modified to suit Irish requirements. Published by Kelly's Directories, Ltd., 182 High Holborn, London.

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ENGINEERING SECTION.

ITEMS.

Another London Bridge is about to engage the attention of the City Corporation. Already Vauxhall Bridge has been rebuilt, London Bridge widened, and Blackfriars Bridge is to have its width increased from 75 ft. to 105 ft. Now Southwark Bridge is to be improved or reconstructed, the question having been referred to the Bridge House Committee for a report. The bridge is at present very ill adapted for traffic, owing to the difficulties of approach, the sharp incline, and the narrowness between walls, the distance being but 42 feet. The width for vehicular traffic is but 28 ft. 6 in.—quite insufficient for convenient use. The bridge has already done 88 years' service, and, having regard to the growth of population and business in London during that period, a proposal to now spend half a million sterling on its reconstruction cannot be looked on as utterly extravagant.

* * * *

The Local Government Board lost no time in examining the drawings submitted in competition for the labourers' cottage design, as the award was published on Saturday last. The first prize has gone to Mr. Sydney Moss, Rockbank, Eccles, Lancashire; the second and third prizes have, however, been retained in Ireland, and are awarded respectively to Mr. J. Roseman Burns, 17 Serpentine Avenue, Ballsbridge, Dublin, and Mr. T. M. Deane, 15 Ely Place, Dublin. Unfortunately, it would appear that neither the public, nor members of the interested professions, will be afforded opportunity to inspect the numerous plans submitted, and we hope it is not yet too late to have such decision revised. The housing of the labourers throughout the country is a question of national, economical, and artistic importance, and the Local Government Board would suitably crown a competition, the conditions of which were above criticism, if a public exhibition of the drawings were now arranged for.

* * * *

The Channel Tunnel Scheme is still exercising the public mind, but now that the excitement of the revival of the scheme is dying down, practical objections are obtaining weighty consideration, and opinion appears to be setting in against the proposals to convert England into an appanage of the Continent. It seems to us that if a tunnel is to be driven anywhere, to appease the voracious maw of the modern engineer, it should be between Ireland and Scotland, and we note that many influential English journals are of this opinion. The traffic might not be nearly so vast as through the Channel tunnel, and, if the scheme is scarcely expected to pay in the latter case, it certainly would not in the former; yet, for sentimental reasons, the linking up of the British Isles is more likely to appeal to the "man-in-the-street" than the joining to France of one portion of the Kingdom. Or, lacking a tunnel, why should there not be a train ferry from Stranraer to Larne? A strong movement is on foot to improve the Canadian mail service, making Blacksod Bay a port of call, and it is well within the bounds of possibility that the present generation will live to see a direct mail route, from England to her chief Colony, passing through Ireland. The voyage from Blacksod Bay to Halifax could be accomplished in three and a-half days—a great consideration in these strenuous times—and the shortening of the sea journey would materially help to capture much of the Transatlantic business. There is little doubt that the scheme is claiming much attention, almost to the exclusion of the Channel tunnel proposals, which so many believe to be totally against Imperial interests.

* * * *

The reports of the recent earthquakes have depicted to us all, in these islands, the horrors attending such visitations. The terrible disturbances at Valparaiso and San Francisco, with the disastrous results that followed, undoubtedly stirred the imagination and sympathy of the civilised world, but the latest catastrophe, occurring in a British Colony, by which many of our own fellow-countrymen have lost their lives, brings home to us more seriously the devastation which occurs when such dire calamity overtakes a city. Kingston, which, from all reports, is practically destroyed, has survived many previous vicissitudes. A large portion of the city was consumed by fire in 1780, in 1843 an extensive

fire caused widespread destruction, in 1862 the commercial district was wiped out, and again in 1882 an outbreak of fire occurred which rendered 6,000 people homeless. It has been said that if the inhabitants had remembered that they lived in an earthquake zone, and built their houses of timber instead of brick, the recent visitation would have been less destructive. Yet, having regard to the number of fires that have occurred, it is easy to comprehend that buildings of fire-resisting materials must have been looked upon as the lesser of two evils. Once again, the outbreak of fire after the disturbance was responsible for more damage than was caused by the actual shock, and, the mains having been broken, it was impossible to cope with the conflagration for some days. Fortunately, the panic which ensued appears to have been rapidly allayed, and the arrival of two American warships with medical and other supplies afforded much relief to the sufferers. A Mansion House and other local funds have been opened, and are being largely subscribed to, so that the unfortunate city will shortly receive substantial aid. It is to be hoped that once again its recuperative powers will be manifested, and that the recent sad occurrence will stay but for a short while the tide of prosperity that has been setting in to the island. One matter which calls for comment is the fact that no British warship has, up to the time of writing, put in an appearance.

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Irish railway affairs at the present moment are in a very unsettled condition, and it is an indication of the prosperity of the country that public confidence in the companies remains unabated. Until the conclusion of the Commission on Irish Railways, the managements are severely handicapped, for it is impossible to foretell what the result of the enquiry will be. Apparently, one of three recommendations may be made: to leave matters as they are, with a slight re-arrangement of rates and facilities; for the large companies to annex the smaller, and leave the traffic of Ireland in the hands of three of the chief Boards; or to hand all the railways over to State control. The second scheme is the least likely, as it would scarcely be feasible to force the larger companies to take over some of the smaller lines, which do not pay their working expenses, and which would always be a drain on the resources of the purchaser. So far, the evidence has been in favour of the last scheme, and the sum necessary for State purchase has been mentioned as between forty and fifty million pounds. It will be seen that while such sweeping changes are under consideration, the companies are unlikely to proceed to further develop their resources, and schemes like that of the bridging of the river Lee at Cork are at a standstill. To add to the disturbed condition of affairs, the White Star Line is proposing to change its home port from Liverpool to Southampton, and to avoid calling at Queenstown on the homeward voyages, which will materially affect the mail business on the Great Southern and Western Railway. To crown all is the rumour of a coming combined labour disturbance amongst the railway employes, which, if it take shape, will react adversely upon the commercial prosperity of the whole Kingdom. The outlook is, therefore, gloomy in the extreme, and it is to be hoped that one of the chief elements of unrest, the Commission, will shorten its deliberations as much as possible, so that railway men will in some degree know how they stand.

* * * *

The Government recently offered the Menai Suspension Bridge to the Carnarvon County Council as a free gift. Such unlooked-for generosity apparently gave the wise and reverend seigneurs pause, and after some discussion, during which the mouth of the gift horse was carefully "vetted," the offer was declined with thanks. It appears that this bridge, which is nearly eighty-five years old, has reached a stage when a thorough overhaul is desirable, and some of the more alarmist members of the Council were of opinion that the bridge would be found to require renewal. As under present arrangements and ownership, local traffic is provided for as thoroughly as if the bridge were under the care of the Council, and the latter body is not now liable for its maintenance, the hesitation to accept the transfer is quite comprehensible. The Government, therefore, retains the responsibility for the upkeep of the bridge. This engineering work, designed by Telford, is the finest example

of a suspension bridge on a large scale. The width of the strait at the points crossed by the bridge is 1,700 feet, and the roadway is suspended 102 ft. above high-water level, with two intermediate supports 580 feet apart. The platform is about 30 feet in breadth, and is suspended from four lines of strong iron cables, by perpendicular iron rods 5 feet apart.

* * * *

We understand that during the forthcoming Parliamentary session an Architects' Registration Bill will be dealt with. One of the clauses provides "for making it illegal for any Local Authority to employ any person other than a registered architect for such work as the preparation and examination of the plans of buildings, the examination and reporting on existing or proposed buildings, and similar work, carried on by the surveyor and his staff." Presuming such clause is correct, we can quite believe that it is having careful consideration at the hands of the Association of Municipal Engineers. Our contemporary, the *Sanitary Record*, commenting on this clause, regards it "as a bit of genuine unalloyed trades unionism, that could not be easily beaten. It, indeed, excels all the much-abused rules of trade union societies, which restrict citizens to their own trades and current rates of wages, for trades unions have not had the assurance to ask Parliament to pass an Act to fill their pockets in the way the Architects' Bill proposes. The architectural bodies who have promoted this Bill have either got a too highly exalted opinion of their profession, or they are lamentably short of work." We must confess ourselves rather in sympathy with the views expressed by our contemporary. The registration of architects, if it can be properly contrived as a measure of public utility and a safeguard against the employment of incompetent men, is a matter with which we have always been in entire accord, and we trust that the registration of engineers, although a matter of far more difficulty, will eventually follow. By such means the two professions will be kept distinct, and the constant trespassing of each on the other, to their mutual disadvantage, will be avoided. But it is regrettable to notice a recent tendency, on the part of the architects to look upon registration as an end solely for the betterment of their financial position, as a formation of a sort of ring by which equally capable men may be excluded from the exercise of their proper functions. The examination of plans and interpretation of building bye-laws is surely, at least, as much a matter for the ordinary type of Municipal Surveyor as for the hall-marked architect, and the implied contention that small municipalities should maintain two staffs of officials is one that can only be regarded as absurd. In common with this is the still more erratic demand that public officials, even if thoroughly qualified architects, should not be permitted to design buildings, of the requirements of which they naturally have far more knowledge than their unsalaried brethren. The desire of the latter is that practically every "job" should be put up for competition; but grant them this and a strong cleavage is at once discernible. Competition means with such men either open, limited strictly, or limited geographically, just as they fancy the results will affect their chances of being in at the finish. One hears as much of the aims and ideals of the architectural profession that, observing the frantic efforts made from time to time to keep all good things under its thumb, no matter who suffers, one can only charitably suppose that work-hunger has for the time being unbalanced the artistic temperament.



The Stockholms Trafagnings Aktiebolag have made a new departure in the art of colouring birchwood for use in room fitting, the manufacture of furniture, and joinery generally. The *modus operandi* differs from the old method of laying the sawn boards or veneer in a colour bath, which resulted in the surface having a lifeless and monotonous colour, in that the wood is coloured by forcing the colour with strong pressure into the freshly-cut log from one end to the other, by which process the pigment takes the place of the out-driven sap. By this process not only is the beautiful grain of the birchwood maintained, but very much brightened. The wood is having an extensive vogue for panelling dwelling-rooms, restaurants, theatres, railway carriages, etc., as well as for the manufacture of furniture. The firm publish an interesting pamphlet descriptive of the many uses to which this dyed wood is applicable, from which it will be seen that no attempt is made at the imitation of natural woods, but rather to produce an acceptable novelty, in which they have succeeded admirably.

A BELATED REPORT.

The Title of Architect.

The Report of the International Congress of Architects, which assembled at Paris, from July 29th to August 4th, 1900 (!), in connection with the Exposition Universelle, has just appeared in a handsomely bound and illustrated volume. We note that the Academic Society of Lyons had concerned itself with a tabulation of the claims of architects in various countries to a diploma or recognition of title. It does not appear that the responses from architectural societies of twenty-three countries and States have added much to the wisdom of the registration question. Among those who contributed information were representative societies of the following:—Austria, Holland, Belgium, Duchy of Luxembourg, Switzerland, England, Ireland, Sweden and Norway, America (generally), France, Turkey, Germany, Hungary, Greece, Italy, Spain, Russia, United States of Louisiana, Ohio, New York, New Jersey, and Missouri.

In effect, about twelve States report a diploma as more or less obligatory. Of the others, it may be of passing interest to print what England and Ireland contributed to the cosmopolitan wisdom.

Angleterre.

M. Phene Spiers, architecte à Londres, membre de Conseil de l'Institut Royal des Architectes Britanniques, correspondant de la Société Centrale des Architectes Français, et M. Locke, Secrétaire de l'Institut Royal des Architectes Britanniques, à Londres.

La profession est absolument libre en Angleterre; aucun diplôme n'est exigé.

Dépendant l'Institut Royal des Architectes Britanniques, qui est la seule Société d'Architectes possédant une *Charte Royale*, a institué deux diplômes volontaires:

Celui d'associé du Royal Institut Britannique des Architectes (A.R.I.B.A.), et le diplôme supérieur de membre ou *Fellow* (F.R.I.B.A.).

Pour la titre d'associé, le candidat doit subir des examens; pour le titre de membre (*Fellow*), le candidat doit avoir au moins sept années de pratique et soumettre à l'examen du Conseil des œuvres et des dessins personnels.

Les architectes de valeur recherchant la possession de ces titres, et certe, garantie qu'à la public, il faut ajouter celle donnée par l'institution des Architectes inspecteurs de travaux qui fonctionnent tant à Londres que dans les provinces.

Irlande.

M. Thomas Drew, à Dublin, Président de l'Institut Royal des Architectes d'Irlande, Professeur à l'Académie Royale des Arts.

La profession est libre en Irlande, l'Institut Royal des Architectes de l'Irlande ne possédant ni privilège de la reine, ni charte royale ne décerne pas diplôme. Il forme cependant une Société qui est cordonnée avec d'autres Sociétés Provinciales des même nature en Angleterre et en Ecosse, qui se sont constituées en Sociétés allées de l'Institut Royal des Architectes Britanniques.

Ce groupement de Sociétés reconnaît la suprématie de la société exécutive mère à Londres (l'Institut Royal des Architectes Britanniques) adopte ses coutumes, son système d'honoraires se met à l'unisson de ses statuts, est en contact et correspondance avec elle, et a des représentants qui ont le droit de siéger à son conseil central.

Ces sociétés provinciales associées, désignent à l'Écclésiastique, à Londres, les architectes de valeur auxquels l'Institut Royal peut décerner son titre de sociétaire.

D'après la système la diplôme de la valeur puisqu'il est une marque d'estime donnée par des confrères qui peuvent être des rivaux.

Cette organisation qui est récente (cinq ans) a un grand succès, elle a consolidé la profession Partoul et promet de pouvoir résoudre le problème du diplôme.

Sera-ce d'affaire d'un enregistrement par l'État ou non? La est la question.



THE TOWN TENANTS' ACT.

We have received a copy of a book on the new Town Tenants' Act, 1906, which affects all those interested in house property in Ireland. This book is by two practising barristers who have had a very distinguished course—viz., Messrs. Wm. Black and D. O'Leary. It is written on a special system in plain language to explain to every ordinary reader all the liabilities now imposed on house-owners, and all claims now open to house-occupiers under this revolutionary measure.

This book, which has been highly praised by every leading newspaper in Ireland, is quite the best book we have seen on the subject, and, indeed, the clearest exposition of any legal matter of special interest to our readers that we have seen for a long time. Its price is 1s. 9d. net. It is published by Sealy, Bryers, and Walker, Dublin, and can be had from all book-sellers.

"A COMPETITION."*

One once went in for a competition. It was not a very celebrated competition, nor were the premiums large—they ran, if memory serves aright, from £20 to £50—no great inducement even in these strenuous times. One thought, however, that the "Kudos" resulting from success might be great, and so competed.

Unfortunately, between 1,200 and 2,000 architects, engineers, builders, plumbers, and private individuals thought similarly, and applied for the conditions. Most of these were from Ireland, but a goodly sprinkling were from England, Wales, and Scotland, while it is rumoured one man wrote from South Africa. Things must be in a sad way out there.

As to how many of the 2,000 actually started preparing plans, one has no accurate information—probably from 500 to 700—but it is reported that 800 sets of drawings were sent in by 386 competitors, representing approximately the same number of bosoms inflated with hope, and as the result is not yet noised abroad, it is probable that 385 of these bosoms are still inflated with hope, which has long since died in one's own—squashed out with the dead weight of long odds.

Doubtless, you will by now have guessed the competition referred to; some may even have been sanguine enough to have entered, and be reckoned among the 385 hoppers; if that is so, one has no desire to become a wet blanket, but a cursory review of the conditions laid down may provoke an instructive discussion.

Roughly speaking, one was asked to provide and fix at a cost of £130 a one or two storey cottage, complete in all details, with a living room containing 1,200 feet of fresh air, and three bedrooms, one containing 900 and the other two containing 600 cubic feet of the same commodity. Moreover, this cottage was to be well and truly built, with external walls not less than 10 in. thick, dashed or plastered, thereby ordaining that concrete, that delightfully cheap material, if employed, should be cement plastered externally.

Brickwork was obviously out of the question—therefore, one's choice lay between masonry and concrete. One consulted many people—builders and brother professionals—and much advice was the result, mostly of a contradictory nature.

Masonry, of course, had the merit of being the more familiar material to country builders, while concrete could be produced at a very low price by the liberal employment of displacers, to which, surely, much objection cannot be raised, provided always the cement is good. "Displacers at suitable intervals approved by the architect"—Heaven help the architect who has to stand by and point out how frequently the displacers may be displayed! but such presumably would be the specification phraseology, if the term can be excused.

But then, even with displacers, one had to superadd the wretched cement plaster, bringing the cost, at least, up to, if not over, the price of masonry, and so one tossed up, and concrete won.

This question settled, one prepared typewritten schedules, and distributed them among one's country builder friends. Sketches, too, of stairs and so forth were attached, and these were returned in due course conscientiously priced.

One's most particular friend (a notorious price-cutter) was requested to furnish detailed estimates for both one's designs, a one-storey and a double-decker.

Those schedules were interesting reading. One learned from them that, whereas ordinary excavation in Co. Dublin costs 1s. 6d., in Co. Kildare it costs 1s., and in Co. Cork 8d. Concrete, on the other hand, in Co. Dublin (with profuse displacers) can be brought down as low as 14s. per yd., while in Co. Cork the lowest cut appears to be 17s.—this is for foundations. In the matter of rising walls (6-1), concrete in Dublin appeared to cost 16s., while in Cork it jumped to 26s.

Lead laid in Co. Dublin seemed to be worth about 35s. per cwt., while it can be laid in Kildare for 30s. A simple staircase (about 14 risers) costing in Dublin £8 10s., can be built in Cork for £4 every time. It seemed obvious from the first that a £130 cottage could not be fully plastered inside; one, therefore, asked for a price for rendering only, finished smooth with a hand-float: this in Dublin costs 1s. 6d. per yd., but a Kildare man will do it as often as one likes for 7d. The variation in cost of roofing complete with American slates was almost as great, amounting to £1 per square. But someone may say "these builders were fools, and knew not their honourable trade." To such an one I would say, they were men of large

experience, and well known in their own districts, and, moreover, with the exception of he who is referred to as "one's most particular friend," they did not know for what purpose they were pricing the schedules—thinking, doubtless, that some vast scheme was afoot, from which, in the days to come, they would reap large emoluments. In due course the most particular builder friend arrived with his estimates—they were very complete, and he had stuck to his schedule as closely as a brother sticks, but alas! the one-storey edifice worked out about £150, and the two-storey at £168. Consternation was on top for a little—the L.G.B. competition was an impossibility unless drastic measures were adopted. To reduce the size of the buildings was impossible—firstly, because the drawings were already completed, and, secondly, because 6 in. off any dimension would reduce the cubing below the stated level.

It seemed the only course one could adopt was to cull the honey from every flower, and price at the lowest rate quoted for each material, irrespective of locality. This course had the merit that it could truthfully be asserted that one's prices were those in vogue in localities with which one was familiar—one of the L.G.B. conditions.

By pricing at the lowest rates picked from all three schedules, now known as "the honey system," a substantial reduction was effected, and the price of the cottages, if well and truly built, in the Utopian county thus arrived at; but then, horror of horrors! the out-building had not been included, so once again the fat was in the fire.

Some judicious pruning in the thickness of concrete and other floors, in the size of sashes and doors, in the dimensions of chimney breasts, foundations, and so forth, brought the external conveniences into the fold, and then one's only labour was to fill in the forms and write a short specification.

So much for the competition, but it behoves us to look at the conclusions to which one is forced. Unquestionably, the cottages asked for were much too large for the figure stated. The apartments were unnecessarily big, and there was one room too many. It seems impossible to design a cottage with the room capacity required with a total cubing of less than about 7,000 cubic feet—this divided into £130 works out at about 4½d. per foot cube, a price at which no permanent and habitable dwelling-house can be erected with good materials; besides, when estimating cost by cubing, one does not, as a rule, include grates and sanitary arrangements, even though the latter take the form of the homely bucket.

But the L.G.B. cottage at £130 had to include all these things, and a small range to boot, or, if in a turf country, an open hearth with fire-bars and hobs which must be formed with some fire-resisting material. One cannot help thinking that the Irish farm labourer, that delightful individual of whom one hears so much and sees so little, should be able to content himself and, incidentally, his wife and offspring, in a cottage of three rooms—two bedrooms and a living room.

We all know the old familiar plan—wall and chimney-breast in the middle living room, right-hand-side as one enters the tiny porch, and two bedrooms to the left: if it has worked so well in the past, why shouldn't it work again? and if very carefully designed and arranged with the most economical materials, it might be produced for £130. If, on the other hand, cottages must be erected for that figure containing four rooms, and the L.G.B. allowance of 3,300 cubic feet, the only solution is Mud—this sounds prosaic, but so says an eminent Dublin architect who has taken a great interest in this threadbare but ever recurring subject.

Admittedly, mud on one's clothes, and to road users, is offensive, but mud in the walls of a cottage has merits. The mud cottage is familiar to us all—it has stood the test of time, and, when unroofed, its walls have bravely weathered a score of winters, which would have reduced its masonry rival in similar plight to a pile of uninteresting stones.

Consider for a moment its demerits. The examples of mud-built cottages one sees, suffer principally from lack of light and ventilation, and, perhaps, a somewhat tumbled-down hearth.

Surely these defects are easily overcome, the first by the fitting of ample windows, and the latter by building the hearth with brick-work.

This and a concrete and tiled floor, together with the joinery, are the only skilled works in the establishment, for surely a labourer, with the help of "Technical Education," can puddle clay.

The roof would, of course, be thatched with rough fir rafters, and fir ties could be embedded in the mud at the angles of walls to bind them together.

Internal partitions would be lathed and rendered smooth, and all walls inside and out lime-whitened. From an

* A paper recently read at the Design Club, A.A.I.

aesthetic point of view, there is no doubt as to which material scores—the cry goes up, “the muds have it every time”—the massive walls slightly battered (I refer to their plumbing, of course), the golden thatch with neatly-trimmed eaves, the creepers peeping in at the ample windows, and the much-maligned mud cottage becomes part of the landscape at the low cut of £130 each, and everyone, including the L.G.B., is satisfied.

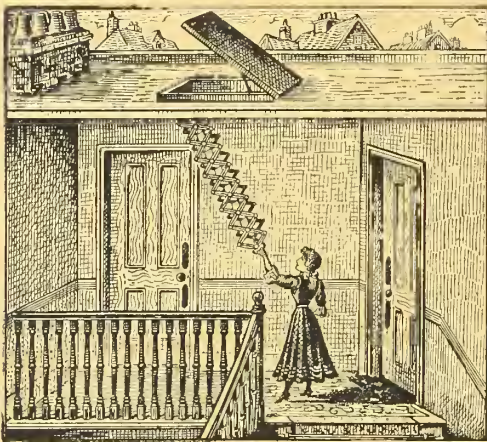
N.B.—Since writing the above the award has been published, and has fully justified the death of hope in the heart of the author.

A USEFUL FIRE ESCAPE.

The Presto Ladder and Roof Trap.

For the purpose of facilitating the escape of the inmates from burning buildings, the London Building Acts (Amendment) Act, 1905, section 12, declares that easy access to the roofs of houses shall, in certain specified cases, be provided. The buildings to which this section applies are as follows:—(1) Every new building which has more than two storeys above the ground storey, or which is more than 30 feet in height; (2) every existing building which has projecting shops, and every other existing building, except dwelling-houses occupied as such by not more than two families. The onus of providing the means of escape falls on the owner, and the facilities specified by the Act are—(a) a dormer window, or a door, opening in a suitable position, approved by the district surveyor, on to the roof, with proper access thereto; or, (b) a trap-door in a suitable position approved by the district surveyor, covered with copper or zinc, and hung on hinges so as to admit of same opening to the fullest extent, and furnished with a counter-weight so as to ensure that the trap shall open automatically when unfastened, and also with a fixed or hinged step ladder leading to the roof.

It will be evident that in the case of new buildings the



The Presto Ladder.

dormer window or door on to the roof can be provided for in the plans, though, of course, the trap-door and ladder alternatives can also be availed of. But in the case of existing buildings, the latter is the only practicable device, as the dormer window or door would, in the majority of cases, necessitate extensive and costly structural alterations. For the purpose of specially meeting the cases of existing buildings, and of complying with the requirements of the Act above referred to, a very ingenious invention has recently been put on the market. This consists of the “Presto” Combined Extending Ladder and Balance Trap Door, the working of which will be readily understood from our illustration.

The “Presto” ladder is made of stamped steel, light, strong, and durable. It is connected by levers to the trap door in the roof, to which it acts as a balance-weight. When the ladder is out of use it folds up beneath the trap-door, and requires a depth of only fifteen inches, that is to say, the space between the trap-door to roof and the ceiling level, leaving an entirely free floor space. On pulling a cord or chain, the ladder and door is unlocked, the ladder opens out and extends to the floor, and at the same time it actuates and opens the trap-door. It also throws up a hand-rail if required. On lifting or pushing the ladder up from the floor, it folds up and at the same time withdraws the hand-rail, closes and securely locks the trap-door automatically, and is entirely out of the way when not in use. A trap-door at ceiling level can be added if desired, and worked automatically with the roof trap-door. With this addition, the

ladder when not in use is not only out of the way, but also of sight. One particular virtue the “Presto” combination possesses is that it is impossible to open or close it from the outside, so that perfect security from intruders is provided. The simplicity and ease with which the whole appliance can be brought into use are such that a child can work it.

In addition to the collapsible steel ladder, the company also supplies a “Presto” wooden ladder combined with trap-door. This ladder folds up in two lengths, and hangs close up beneath the ceiling, and acts in conjunction with the trap-door in a similar manner to that described above. Both of the devices can be applied to sloping roofs, though our illustration shows a flat roof.

The utility of the “Presto” invention in case of fire is self-evident. So great is it that it really ought to be applied not only to buildings of the class specified in the London Act, but to all dwelling-houses. But, in addition to its value as a life-saver, it would prove extremely useful for affording easy access to roofs for any purpose. Not only is it far less costly than a staircase, but the space occupied by the latter is saved. The price of the ladders is not excessive, and we have no hesitation in recommending them to architects and builders as an accessory that might with advantage be embodied in their plans. Full particulars, including prices or estimates for fixing, can be obtained from “The Presto” Combined Ladder and Trap Co., Ltd., 36 King’s Road, St. Pancras, London, N.W.

IMPORTS.

Port of Dublin.

January 9th—Per Belfast, from Baltimore, 6 boxes mouldings, 194 tons roofing slates, to order. Per Lady Roberts, from London, 1,794 sacks cement, T. Dockrell, Son and Co., Ltd.

January 11th—Per Winga, from Goteborg, 2 cases turned wood, 1,600 bds. laths, 20,541 pcs., 608 bds. boards, to order. Per Dunmore Head, from Riga, 60,265 pcs. firewood, sawn, to order.

January 12th—Per Varna, from Christiania, 134,979 pcs. flooring, W. and L. Crowe, Ltd.

January 14th—Per Inishowen Head, from St. Johns, N.B., 24,413 pcs. spruce, deals, and ends, to order.

January 15th—Per Essonite, from London, 250 tons cement, A. Agnew.

January 16th—Per Huddersfield, from Darien, Ga., 3,765 pcs. lawn p. pine lumber, 312 pcs. p. pine deals, W. and L. Crowe, Ltd.

January 17th—Per Jason, from Ghent, 9,613 bags cement, 12 cases marble, to order.

January 18th—Per City of Brussels, from Antwerp, 6 cases plate glass, 3 cases marble, 69 cases window glass, Brooks, Thomas and Co., Ltd.; 59 cases window glass, Hoyte and Son; 9 do. do., W. Martin, Son and Co.; 78 do. do., J. Arigho and Sons; 4 do. do., J. Hall and Sons; 480 do. do., T. Dockrell, Son and Co., Ltd.; 5 do. do., T. P. and R. Goodbody; 10 do. do., J. Saunders; 6 do. do., D. Gordon; 6 do. do., T. Sinclair; 12 do. do., D. Behan; 50 do. do., W. Martin, Son and Co.; 45 do. do., to order. Per Viola, from Chester, 210 tons bricks, T. and C. Martin, Ltd. Per Alastair, from Newhaven, 395 tons cement, W. Richardson. Per Lady Wolseley, from London, 200 sacks whiting, T. Dockrell, Son and Co., Ltd.; 42 pkgs. w. lead, do. do.; 3,000 pcs. timber, Rd. Martin and Co.

January 19th—Per Lilla, from Bridgwater, 90 tons bricks, W. and L. Crowe, Ltd. Per Spence, from Chester, 89 tons brick goods, H. and J. Martin, Ltd.; 17 do. do., J. Pemberton; 15 do. do., Wallace Bros., Ltd.; 9 do. do., C. P. Glorney. Per Problem, from Chester, 100 tons bricks, J. McFerran and Co. Per Lady Martin, from London, 1,000 sacks cement, A. Agnew.

January 21st—Per Result, from Chester, 180 tons bricks, T. and C. Martin, Ltd.

January 22nd—City of Frankfurt, from Hamburg, 3,780 cakes asphalt, to order. Per Lord Charlemont, from Baltimore, 206 tons roofing slates, to order; 100 tons asphalt, Messrs. John Reinhardt and Son, Ltd. Per Marion, from Bridgwater, 45 tons bricks, J. Kelly and Son; 50 do. do., E. H. Tickell and Co., Ltd.; 7 do. do., Brooks, Thomas and Co., Ltd.

Mr. Richard O’Driscoll, C.E., of Mitchelstown, has been appointed an engineer to the Congested Districts’ Board after a competitive examination.



ARCHITECTURAL ASSOCIATION OF IRELAND JOTTINGS.

The Design Club looks like being one of the biggest successes of the year, ten members and a guest being present at the meeting held on Friday last, January 18th. An interesting paper was read by Mr. F. Sparrow, which evoked much discussion. The next meeting will be held on January 25th, when Mr. Bradbury has promised a contribution.

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The visitor expected at the Design Class at the last meeting proved a defaulter. The assembled students waited patiently for his advent for over an hour, and then departed, doubtless regretting their totally wasted evening. Such an occurrence is most discouraging, and it is to be hoped that a practice, frequent enough long ago, is not about to be revived.

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On the 16th inst. the members of the A.A. visited the buildings of the Rotunda Hospital, and the exceptionally large gathering of fourteen was conducted over the premises by the architect, Mr. A. E. Murray, F.R.I.B.A. A start was made with the new building, erected on the site of the old quadrant arcade on the west side, which, being most irregular in shape, rendered the planning, necessary to obtain the large accommodation required, no easy matter. The difficulties have been ingeniously overcome, and the space is fully and advantageously occupied. On the ground floor there is an entrance hall for the reception of patients, whence they are conveyed direct to the lift for either the maternity or gynæcological side of the hospital. There is also accommodation on this floor for the assistant masters and the female resident students. The three stories over are not in communication with the ground floor, and are approached from the main hospital by stone stairs. The upper rooms are for the general use of the hospital and for nurses and sisters. The building, which was erected by Mr. Benjamin Whyte, contractor, is built of concrete, and is granite faced, the "order" of the old granite arcade having been adapted to the design. The floors are of the Homan and Rodgers type, and the structure is constructed entirely on fire-resisting principles. The party next proceeded through the Plunkett Cairns wing, designed by the same architect, in which the operating and examining theatres, wards, etc., afforded much interest. Finally, the old main block, a design of Cooney's was inspected. The whole visit was most enjoyable and instructive, and the vote of thanks, which was proposed by the President at the close, to the architect, Mr. Murray, was re-echoed by each of the members of the party. Before leaving, Mr. Murray hospitably entertained his guests to tea.

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We append a list of forthcoming visits which the Hon. Secretary of the Visits and Demonstrations has arranged, and it will be seen that Mr. J. Geoghegan has provided a programme that should attract a large party every time. It is to be hoped that members will make strenuous efforts to attend, if only out of courtesy to the architects, who kindly consent to devote an afternoon to the benefit of the A.A.I.:-

- Wednesday, January 30th.—3 o'clock—"Artisan Dwelling Company's" buildings in progress. Mr. C. H. Ashworth, architect.
- Wednesday, February 13th.—3 o'clock—Messrs. Hely's New Factory (Hennibique Construction). Mr. F. G. Hicks (Messrs. Batchelor and Hicks).
- Wednesday, February 27th.—3.30 o'clock—Main Drainage Works of the Corporation of Dublin, per Mr. Spencer Harty.
- Wednesday, March 13th.—3 o'clock—New Shops, 66-9 Grafton-street, per Mr. F. Sparrow. Mr. L. A. McDonnell, Architect.

- Wednesday, March 27th.—3 o'clock—New Training College, Glasnevin, for National Board of Education. Mr. J. Franklin Fuller, Architect.
- Wednesday, April 10th.—3 o'clock—New College of Science. Mr. Thos. Manly Deane, Architect.
- Wednesday, April 24th.—3 o'clock—New Pressed Concrete Process at "Messrs. G. Rowe and Co.'s" yard, 5a Clanwilliam-place; per Mr. Malcolm.
- Wednesday, May 8th.—3 o'clock—New Economic Gas Plant (Petrol) at Messrs. Maguire and Gatchell's.

WEE MACGREGOR.

THE MANUFACTURE OF CLERKS OF WORKS.

Tralee Board of Guardians and Rural District Council.

SEWERAGE WORKS.

Mr. D. Cahill, Assistant in the Clerk's Office, was appointed Clerk of Works over the sewerage works to be carried on in the house at a salary of £2 a week. He received a certificate of his efficiency for the work from Mr. Armstrong, Head Master, Tralee Technical School, where he is a pupil.

The above paragraph, from the *Kerry People* of the 19th inst., shows the latest development of technical education in Ireland. The architects and engineers, with their respective institutes, must wake up, or "The Department" will usurp their functions, for while the ordinary member of these institutes will continue to confine himself to his profession, men like Mr. Armstrong, of Tralee, will be turning out general utility men like Mr. Cahill's type, who can vary the dull monotony of keeping cash books by single and double entry in checking the levels on a line of sewer pipes, or possibly laying down a gradient of his own. In time we shall have the workhouse master promoting a water supply scheme, and the storekeeper designing a workhouse chapel, for ambitious men like Mr. Armstrong won't be satisfied with the commonplace clerk of works combination; but what will the Local Government Board say?

THE WORKMEN'S COMPENSATION ACT.

In view of the great interest taken in the increased liabilities of employers which have been created by the Workmen's Compensation Act of 1906, the following table of premiums, which the Car and General Insurance Corporation, Ltd., is prepared to indemnify employers, will be read with interest:—

	Each Employee s. d.
SHOP ASSISTANTS.	
Confectioners, drapers, hatters, milliners, photographers, stationers, tailors, waiters and waitresses	2 6
Bakers, butter, egg and milk dealers, chemists, ironmongers	5 0
Corn chandlers, china and glass dealers, grocers and provision merchants, undertakers	7 6
Butchers, pork butchers and green grocers	12 6
CLERKS, ETC.	
Clerks, typists and private secretaries	2 6
SERVANTS.	
Domestic servants	2 6
Stewards, gardeners, coachmen, grooms	5 0
Gamekeepers, stud grooms and engineers	10 0
Chauffeurs	15 0

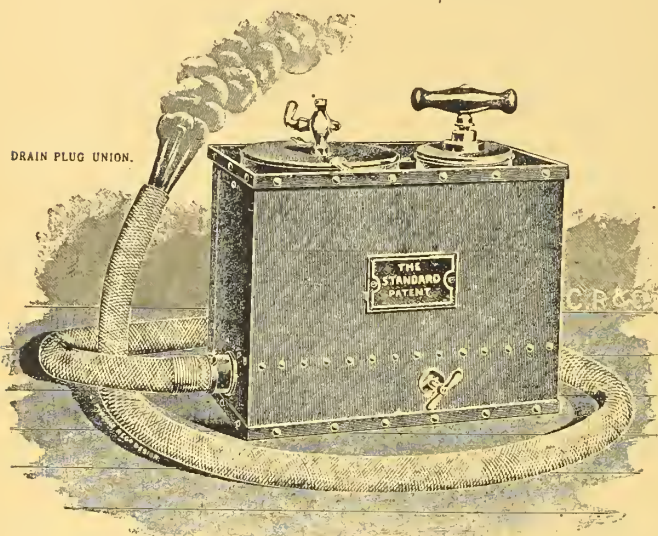
The head offices of the Corporation in Ireland are at 33 Lower Abbey-street, and Messrs. Meccredy, Percy and Co., Ltd., are the district managers.

Mr. David Smith, of Messrs. Smith and Co., 284 South Road, Walkley, Sheffield, has recently been awarded a bronze medal at the Royal Sanitary Exhibition held at Bristol, for combined expansion drain and testing plugs.

The Dublin Main Drainage scheme is usually regarded by the citizens as an extremely expensive, even though necessary, undertaking. The money expended on it, however, will appear small when contrasted with the cost of a similar scheme which it is intended to carry out in Leeds. The Municipal Council of that city has just decided by 30 votes to 11, after a prolonged debate, to promote a Bill in Parliament for power to carry out sewage works which are estimated to cost £1,250,000. Leeds has a somewhat larger population than Dublin, but the cost of its drainage scheme will be relatively at least twice as great in proportion to the population, as in the case of our city.

THE "STANDARD" SMOKE TEST MACHINE.

The illustration which we give herewith is that of the Patent Standard Smoke Test Machine, manufactured by Messrs. Cakebread, Robey and Co., Stoke Newington, London, N. This generator has been manufactured with a view to the production of a machine that shall be of light weight, small in size, simple in action, and cheap. Its weight is only 14 lbs., and the size 12 in. x 7 in. x 9½ in. high. It will charge 50 ft. of 6 in. drain per minute, and will give a pressure of 15 lbs. per square inch. The arrangement of the pump prevents overheating, at the same time producing the maximum of smoke with a minimum of fuel. The size and weight of the machine is a decided



advantage to surveyors and others who have to test drains both in town and country. The primary object, of course, of this machine is drain-testing, but it will also be found useful by gardeners for fumigating glass-houses, and is valuable for hunting out rodents, etc., from their runs. For testing draughts and ascertaining the correct currents of air in ventilation work, it is also of great service. We may mention that the fuel recommended by the makers is clean Bellisle waste, which makes little gas, keeps well alight, and burns to nothing. This material is also clean for handling. The Standard machine is made almost entirely of metal, and is unbreakable with ordinary use. It is, considering its many advantages, a really cheap article. Full particulars, including prices and directions for use (the latter including some useful hints on drain-testing), can be had from the makers at the address above given.

REVIEWS.

The Architect's and Surveyor's Diary.

We have received from the publishers a copy of "The Architect's and Surveyor's Diary and Almanac" for 1907. It contains a calendar, a diary, one day to a page, and many things of interest to architects and surveyors. Besides the usual Postal information, it gives a list of members of the Royal Institute of British Architects, the Surveyors' Institution, the Quantity Surveyors' Association, the Institution of Civil Engineers, the Society of Architects, the Auctioneers' Institute of the United Kingdom. A volume worthy of a place on any business man's desk. Price in cloth, 3s. 6d.

London: Waterlow Bros. and Layton, Limited, 24 and 25 Birchin Lane, E.C.

FOR SALE—Single Vertical Spindle Molder, 24-inch table, by Elsworth. Complete with straight fence and safety guard, ring fence for circular work, rising and falling head; countershaft and reverse slotted rings; quantity irons, etc.; £10.—229, this Office.

ENGINEERING NEWS.

Ballymore.—Mr. J. Robins, Moate, has been appointed engineer to the Ballymore District Council under the new Labourers' Cottages Act.

Bawnboy.—The Council of this Rural District will, on 4th February, consider applications from qualified persons for the position of engineer and architect in connection with the proposed scheme of labourers' cottages in the district.

Clare.—At the weekly meeting of the Ennistymon Board of Guardians on Tuesday, Mr. M. Lyden, J.P., in the chair tenders were received for the construction of a scheme of waterworks for Ennistymon, Lahinch, and the Workhouse. The tender of Messrs. McNie and McNally, of Dungannon, Tyrone, at £5,977, was accepted. The other tenders went up to £6,959, there being a small margin between them.

Carrickmacross.—The Council of this district will on 7th February, consider applications from qualified persons for the performance of engineering duties under the Labourers' Acts.

Charleville.—The Council of this Rural District invite proposals from persons competent under Rule 50 (1) of the Labourers (Ireland) Order, 1906, to act as architect, engineer, or surveyor, under the Labourers (Ireland) Acts.

Portrush.—The authorities at Portrush are endeavouring to get a grant to enable them to construct new water works for this favoured seaside resort.

Rathdown.—The Rathdown No. 1 Rural District Council are about to apply to the Local Government Board for a loan of £13,000 for a new scheme of drainage they propose to carry out at Dundrum. The engineers are Messrs. McCarthy and Anderson, 39 Westmoreland-street, Dublin.

CONTRACT.

TO BUILDERS AND CONTRACTORS.

The Board of Governors of the Waterford and Bishop Foy Endowed Schools, Waterford, invite tenders from Building Contractors for the erection of a new Primary School at Waterford, in accordance with the Drawings and Specifications prepared by Mr. William Friel, Architect, Chamber of Commerce Buildings, Waterford, at which latter address the said Drawings and Specifications can be seen.

Bills of Quantities, prepared by Messrs. Patterson and Kempster, 95 Lower Leeson Street, Dublin, can be obtained from the Secretary, Waterford and Bishop Foy Endowed Schools, Cathedral Square, Waterford, on payment of a deposit of Two Guineas, which sum will be returned on receipt of a "bona-fide" tender.

The tenders, enclosed in an envelope subscribed with name of the work, are to be addressed to the Architect, and be delivered to him not later than 12 o'clock (noon) on the 4th February, 1907, and be accompanied by the Bill of Quantities, priced and extended in ink, in a separate sealed envelope, also subscribed with the name of the work. The building contractor whose tender is accepted will be required to enter into a Bond for the due performance of his contract.

The Governors of the Waterford and Bishop Foy Endowed Schools do not bind themselves to accept the lowest or any tender.

FOREMAN WANTED.—Builder's Foreman wanted to take charge large country job; must be capable man; state age, wages, and reference.—M.R. 126, this office.

DERRICK FOR SALE.—15 Ton Steam Derrick Crane, with 3 heavy timber bogies, 4 ft. 8½ in. gauge—Jib 65 ft. long, and will lift 10 tons at 55 ft. radius; steel mast; split timber jib; 80 lbs. steam; all latest improvements, and only worked one contract 9 months—Now lying at Downies Pier, County Donegal. Specially designed for Pier or Quarry works. Price on site, £365. CAMPBELL & HANDMAN, 9 New Broad Street, London, E.C.

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DESIGN FOR A BRANCH BANK

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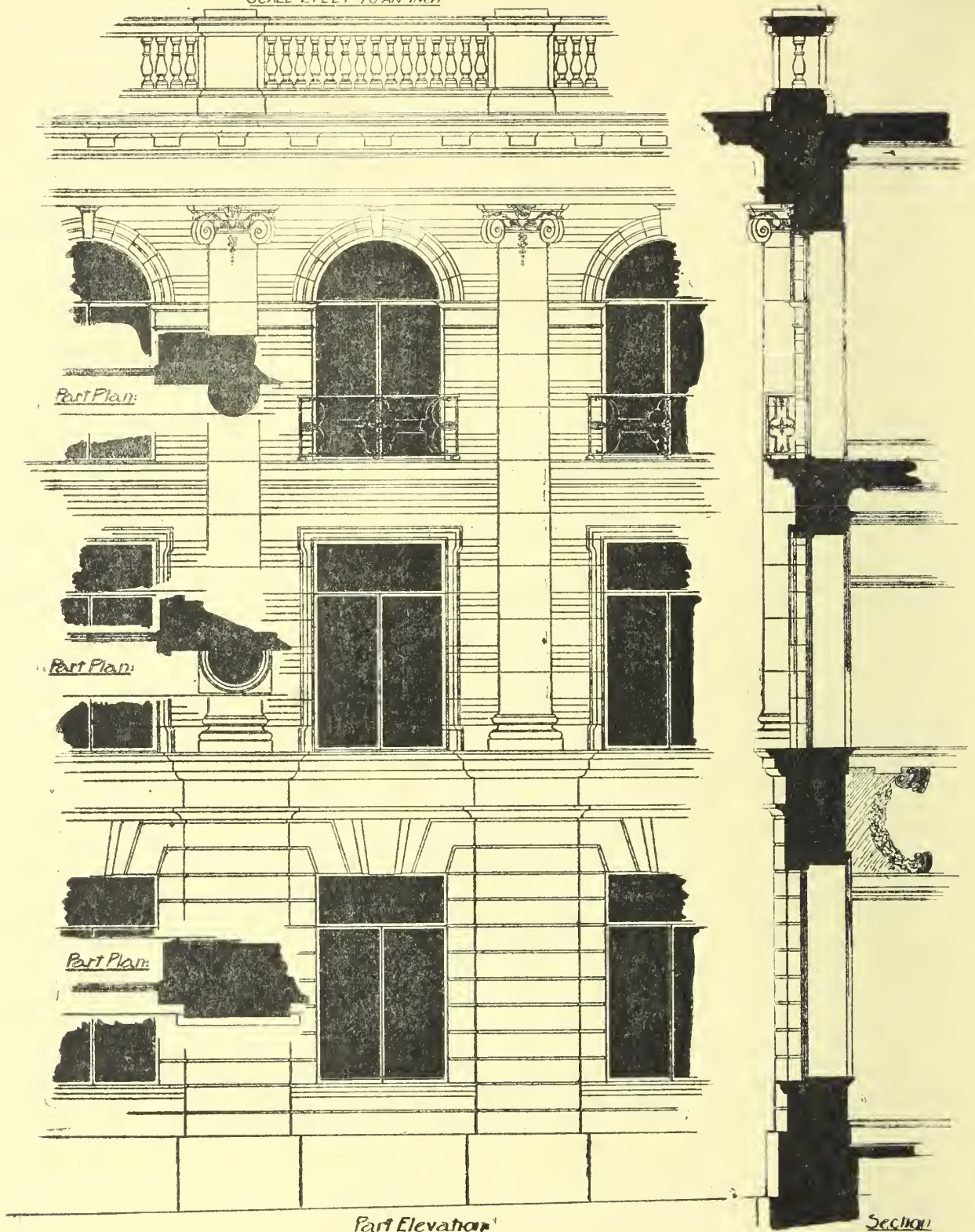
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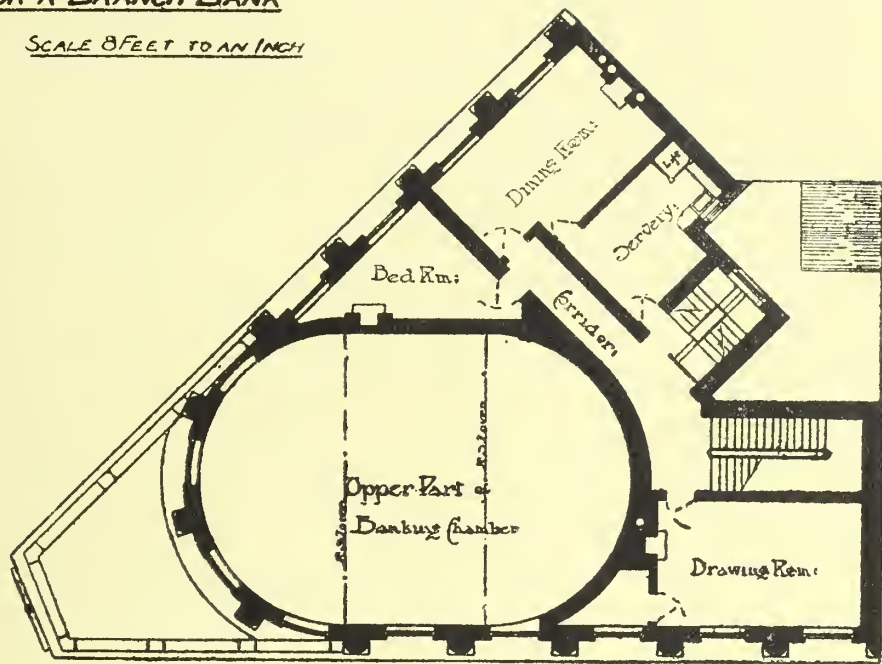
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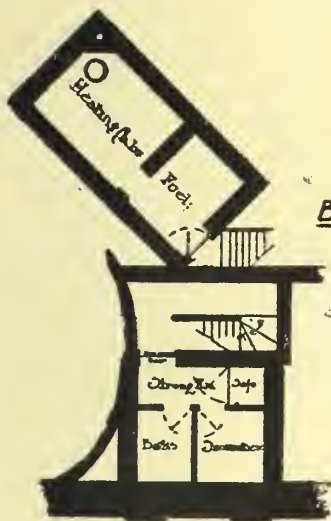
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DESIGN FOR A BRANCH BANK

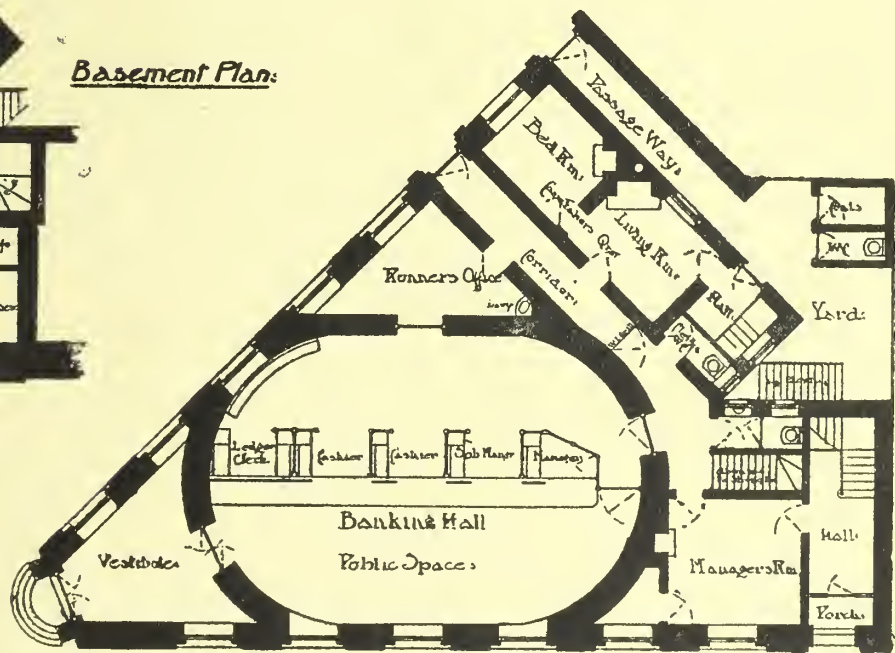
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First Floor Plans



Basement Plan:



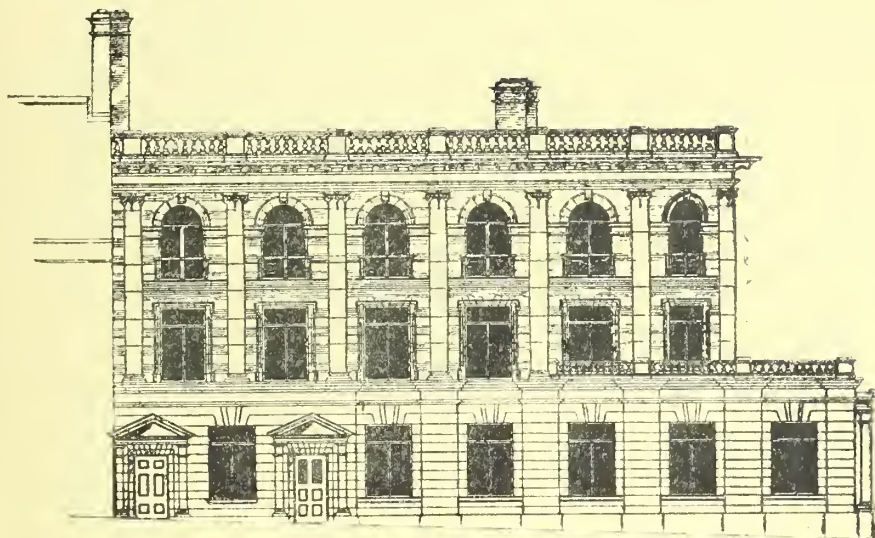
Ground Plan:

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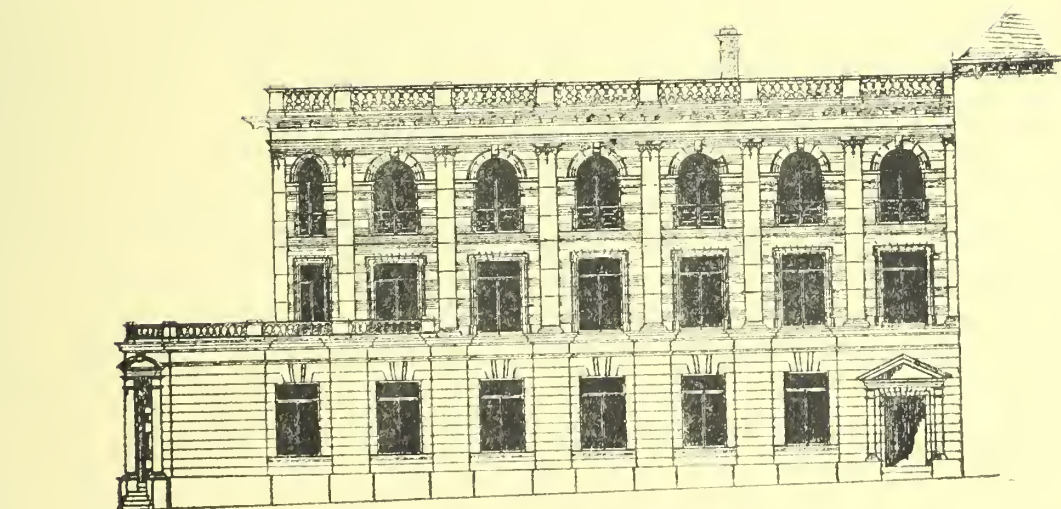
"INSTITUTE PRIZE."

DESIGN FOR A BRANCH BANK

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Elevation to O'Connell St



Elevation to Mitchell St:

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13

THE IRISH BUILDER AND ENGINEER.

A JOURNAL DEVOTED TO

ARCHITECTURE, ARCHÆOLOGY, ENGINEERING, SANITATION,

ARTS AND HANDICRAFTS.

Every Second Saturday.

[Estab. Jan. 1859.]

No. 3—Vol. XLIX.

HEAD OFFICE

FEBRUARY 9, 1907.

34 LOWER ABBEY ST.,
DUBLIN.

Price 1d

TOPICAL TOUCHES.

Saturday last being "Varnishing Day," we visited the Royal Hibernian Academy Exhibition. The occasion was more than usually interesting in view of the recent Royal Commission on Art Institutions in Ireland, and the storm of comment thereby evoked. The show, as a whole, is far above the average, as, indeed, have been all the exhibitions since Sir Thomas Drew became President; but we are sorry to say we cannot from this deduce any marked improvement in Irish art; rather, alas! the contrary.

* * * *

Very wisely, of late years, the Council have reinforced the undoubtedly thin and poor quality and quantity of the Irish exhibits by English and Scottish pictures. It may be said at once that without exception all the best pictures hail from the other side.

* * * *

The architectural drawings, year by year fewer in number, are this year almost insignificant; but a pleasant change has been made by, instead of relegating them to the darkest internal corner of the inner gallery, they are hung upon a small screen in the principal room, a couple of houses and a church, with one or two others, constituting the total. None call for any special note. We are sorry to see they have not been reinforced by some good English or Scottish work, as has been the practice during recent years. Our readers will remember Mr. Arnold Mitchell's fine water-colours of last year.

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Of the pictures of Irish origin, Mr. William Orpen's and Mr. J. B. Yeats' portraits stand out with special prominence, and, without reflection upon a considerable bulk of meritorious work, may be said to alone redeem the exhibition from mediocrity, or worse, so far as Ireland is concerned. The unfinished portrait of Michael Davitt is, although unfinished, a splendid piece of work, strong and characteristic.

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The portrait of Mr. Justice Madden by Mr. Yeats is, however, weak and commonplace. He does himself much greater justice in his portrait of Sir James Dougherty, C.B., C.V.O., however.

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Two good portraits by W. Harris Brown are those of the Most Rev. Dr. Alexander and the Provost of Trinity, Dr. Traill, the former being by far the best.

* * * *

Mr. J. M. Kavanagh, Mr. Alexander Williams, Mr. Nathaniel Hone, Mr. Alfred Grey, and one or two others show some good work, fully up to past performances. A portrait possessing considerable character is that of Monsignor O'Laverty by Miss S. C. Harrison. A powerful study is the portrait of Dr. R. H. Woods by William Orpen.

* * * *

Mr. Bingham M'Guinness is better represented than he has usually been of late years. He has several of his inimitable and original water-colours, "A Dutch Canal," being specially bright and sparkling, showing well his mastery as a water-colourist.

Mr. P. Vincent Duffy has a clever impressionist cloud study in the outer gallery, and a view on the Liffey, with admirable colouring.

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Mr. Poole Addey's portrait of Mrs. Alexander Williams well upholds the local school of portrait painting.

* * * *

A very nice little water-colour in his own characteristic manner, and entitled "Casey's Court," is shown by Mr. R. Caulfeild Orpen, the architect. Close by is a nice water-colour by Mr. A. M'Googan.

* * * *

The inner room of all contains very little work calling for special notice. We have said that the best of the work is English or Scottish, and that the Irish is, in the main, poor; but, nevertheless, the best of the Irish work, that of Wm. Orpen, Yeats, and a few others, is excellent.

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Some capital and most creditable miniatures are shown. The sculpture exhibits are few, but good.

* * * *

The English and Scottish pictures are numerous, and, on the whole, exceedingly good. There is not, as in former years, any one picture of transcendent merit; but there are quite a large number of quite high merit, and the policy which ensures their inclusion must be pronounced good, as it brings into public exhibition, and as an example of contemporary art, pictures such as we cannot readily match in Ireland.

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The portraits amongst these are particularly excellent. "Alexander Sinclair, Esq.," by Sir James Guthrie, P.R.S.A., is undoubtedly a fine portrait.

* * * *

The presentation portrait of Mr. Hugh P. Lane by John S. Sargeant, R.A., is a capital likeness, but "pasty" in effect—not equal to Sargeant's usual work.

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One of the best pictures in the whole exhibition is Mr. John Lavery's "A Lady in Pink." The pose, the colour, and the general effect is such as to mark it out, no matter in what exhibition it might be shown. Unfortunately, Mr. Lavery cannot be claimed as an Irish artist, despite his birth, and must be classed amongst the English and Scottish. But the charm of the picture is very great, and it is something to be grateful for that its author is at least Irish by birth, though he belongs to another school.

* * * *

"Society's Call," a portrait of the artist and his wife, executed by the painter for his children (Professor von Herkomer), is the chief picture of the year, but not altogether satisfactory. The pose of Sir Hubert is rather stiff and unfinished. The lady is, however, a fine portrait.

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"Nais," by A. D. M'Cormick, and "Incense," by Solomon, compel attention.

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A really beautiful portrait of a pretty woman is "The Lady Alice Shaw Stewart," by Sir James Guthrie, P.R.H.A., which demonstrates with Mr. Lavery's "Lady in Pink" what the Scottish portrait school can do at its best.

Mr. Alfred East, A.R.A., contributes a picture under the title of "A Morning Song."

* * * *

There is but little else to record. Were the English and Scottish pictures eliminated, there would be, with the exception of a few portraits and some water-colours, but little worthy of even passing notice. May we hope, despite the rebuff of the Commission, and the insane proposal to entrust the whole future of Irish art to the School of Art, that some good may result, and that some step towards the realisation of an Irish school of painting equal to the Scottish may be realised.

* * * *

Our resident correspondent at Portrane Asylum (from whom, by the way, we have not been hearing of late) writes to say that he has been greatly impressed of late by the energy and enterprise of the Corporation in promoting numerous great public works. He wishes, however, to know why they have not inaugurated a system of sea-water service to every house in the city. He adds that a constant supply of hot and cold sea-water for baths would be a boon and a luxury to the jaded worker and busy professional man alike. "Think," he says, "how delightful, say, on the North Circular Road, to be able of a morning to turn on your sea-water tap and indulge in a dip in the briny in your own bathroom, five miles from the sea. It would delight the citizens, brace their nerves, reduce the death rate, and generally fit them to stand much heavier taxation." He says that someone has told him that there is some difficulty about levels, and the laws of gravitation; but our correspondent says he believes this to be only a subterfuge of the Corporation for shelving this eminently useful work. "Besides," he says, "is not the Vartry water brought a much greater distance, and with even greater disparity in the respective altitudes. The whole question is only one of employing competent engineers."

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Our correspondent says he has also been studying the question of stair-planning of late, and he has arrived at the conclusion that winders should never be used except at turns or curves. He considers it his duty to place this information at the disposal of our readers, and promises another letter at an early date.

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We offer the two foregoing suggestions for the consideration of our budding engineers and architects respectively, without vouching for our correspondent's ideas.

* * * *

A Paris correspondent in a contemporary writes that "for the last few years in fashionable Paris furniture and walls have been smothered in white enamel paint. I know of some comets of Parisian society who went so far as to have a splendid antique Louis XVI. mahogany cabinet lacquered to an ivory tint. The fiat has gone forth that alabaster decoration is no longer the correct thing." There can be no doubt whatever that while white enamel, white flatted finish, and white and gold decoration are amongst the most satisfactory schemes of decoration, that the "white fever" has been overdone, and begins rather to pall upon one, and the eye becomes jaded with eternal white one now sees, not alone in fashionable salons and State apartments, but in every suburban villa as well. As to the vandalism of enamelling the old Louis XVI. cabinet, one need not go so far as Paris for that. Several years ago, when the "aspinall fever" was nearing its crisis, a Dublin decorator told us how the wife of a certain Irish nobleman compelled him, when decorating the family mansion, to white enamel the really beautifully marked old mahogany doors throughout the house, despite the most vigorous objection on his part. The doors, he told us, dated from the Georgian period, were finely moulded and panelled, and with that fine, natural polish that age alone can give.

The Channel tunnel still continues on the *tapis*. It seems to the civilian mind incomprehensible that the military authorities should feel constrained to confess themselves incapable of defending a tunnel-mouth, no bigger than a moderate-sized railway station, against invaders, who would have to crawl snake-like out of the tunnel-mouth, and when, moreover, there are a thousand and one ways in which the tunnel could be flooded or destroyed if needs be.

* * * *

The great point at issue seems to us to be: Would it ever repay the cost of construction? The outlay would necessarily be so vast that it would be many, many generations before the scheme could, even under most favourable circumstances, yield a return in the true sense on the large sum literally "sunk" in the venture. This being so, it should be constructed for posterity, and in that respect there is always looming ahead the danger that in another couple of generations aerial navigation may become an accomplished fact, and be so developed as to render the tunnel obsolete. Wireless telegraphy, the steam engine, and electric light were sprung upon us with far less warning.

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The tunnel, however successful it might otherwise be, would never be a cheap or convenient method of goods transit. Freights would necessarily be too high to compete favourably with over-sea carriage.

* * * *

As to the military aspect, our contemporary, *Civil Engineering*, says:—"Now that the Channel Tunnel matter has received so much attention, it might mark the declension and decadence of the nation if the Continental Powers saw that we considered ourselves incapable of defending the mouth of a tunnel." While General Sir William Butler, than whom there is no living British officer better qualified to express an opinion on the question, does not hesitate to describe the military bogey as pure rubbish. Some doubt is cast upon the value of the military fears when we are told that it is upon record that the great Duke of Wellington himself declared that a railway from Dover to London would be a standing menace to the capital of the Empire.

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Many and varied were the stories told of the bungling and incompetence of the Royal Engineers when, until recently, they were responsible for barrack reconstruction work, and the way in which astute contractors humbugged the military officers who were nominally responsible for the supervision of the building work, until public opinion could stand it no longer, with the result that a civilian department, designated the "Barrack Reconstruction Department," was established, with Mr. Measures, F.R.I.B.A., as chief. Lately there has been going the rounds a story that comes like an echo of old days, and the War Office has again delighted its sternest critics by a truly Gilbertian piece of folly. It appears that an unoffending officer awoke at Aldershot one morning to find miniature mountains of gravel deposited in his near neighbourhood, and a traction-engine with trucks working with ponderous energy to still further obscure the sky-line by depositing heaps of bricks. The astonished officer, after convincing himself that he really was awake, and not a resuscitated Rip Van Winkle, instituted inquiries, which ended with the discovery that the collection of gravel and stones had been sent by order of the War Office on an indent dated 1856! It appears that when the War Office was removing from Pall Mall to its present quarters a clerk found the indent stuffed away in a pigeon-hole, and, without examining the date, sent it on to the contractors for the execution of the order. One wonders if there is alive to-day a man who will now retract with deep contrition the imprecations uttered against the War Office for forgetfulness 50 years ago!

SOME NOTES ON THE "NEW ART."

I had occasion lately to take a journey, not a very long journey, but an exceedingly interesting one, and I therefore purchased a copy of a popular magazine at the bookstall to beguile the tedium of the hour in the train. I opened my paper and became immediately enthralled by an article profusely illustrated by a certain M. Victor Sillard, upon the subject of modern design of all sorts, but chiefly architectural. I did not know at the time who M. Sillard was, but believe him to be a French painter of some reputation; and it was partly amusement and partly dismay that a man of any importance should publish such views over his own signature, that gave me a reason to jot down the following notes:—

Now, I think all of us here are in sympathy with good modern original designing, but the extreme school of "new art," or *L'Art Nouveau*, if you prefer it, must, and does, I think, rouse nothing but hostile feelings in our minds. Certainly, in England our designers have, to a great extent, gone mad; and it is, perhaps, in French modern work that one sees the new art expounded in a more reasonable, and certainly in a more successful, manner.

To my mind the French people seem to be able to do these revolutionary things in a light-hearted and skilful way, and their work seldom causes that shock that the catalogue dumped by a traveller in our offices so frequently gives. In looking for a reason for this, I am half inclined to think that this class of design—one meets it so often in wood mantels and cheaper furniture of all sorts—is unsatisfactory, not because it is in itself ugly, but because it is so very often so *self-conscious*. It seems to cry aloud to us: "Look at me, I have thrown aside convention; I have evolved myself out of nothing; I have taken nothing from the wisdom of the past; I have thrown aside all ancient forms, and here I am naked and unashamed."

It is all so aggressive and obvious, and so easy to do—I mean, of course, the extreme "arty" form, with a good deal more of craft than art about it—that it really makes a room decorated in this way, to me at any rate, a penance to sit in.

Far be it from me to say that there is not a lot of magnificent work being done at present, more especially, perhaps, metal work; and a lot of it is above reproach. But what I attack is the class of decoration, a good example of which is to be seen in one of the newest of our tea shops, in whose smoke-room the elongated cyma and its friends fairly shriek aloud at us.

It is to be regretted that this class of work is so often carried out without an architect, being done in many cases by a decorator who really has no architectural knowledge, and who simply pushes a new fad to advertise himself and his goods; and I don't believe that the public really likes this extreme school—certainly one hears people of refinement condemning it often enough.

But to return to M. Sillard for a moment. It is impossible for anyone to take him, as from the tone of his article he intends himself to be taken, seriously. Poor M. Sillard, he loathes all form of decoration save the newest, and he absolutely revels in the wobbly line terminating in the meaningless mump-like excrescence in which the modern "arty" designer disports himself—mayhap, let us whisper it, because he lacks the skill and education to do better things. M. Sillard does not confine himself in his hatred to art alone, all modern things come under the fierce blow of his displeasure; but, unlike some critics, to do him justice, he does not throw down our existing forms without afterwards building them up of entirely new material and design. Let us take an instance. The modern railway engine he would cast aside, and in its place would have a winged dragon, with smoke and fire belching from its throat, roaring through the night! Splendid, but why not go one further; think of the beauty of the illusion, were the guard arrayed in shining silver armour (designed by M. Sillard), representing the national saint, George of song and legend, seated heroically straddles on the roof of his guard's van, modelled, of course, in the form of a Flemish charger, with which the painters of the Middle Ages have made us familiar. Think of this figure pursuing the fleeing and dis-

comfited dragon, which puffs and shrieks the while, twisting its fiery tail in one wild effort to escape the avenging sword of its saintly persecutor.

How magnificent to thus keep our old legends from oblivion, how exciting to the minds of Liffey Junction and Booterstown, who would nightly assemble at their lonely wayside stations, and would nightly experience thrills that would far outweigh those caused by the local theatre. Also those who dwell near the Liffey Junction and Booterstown could keep their hard earned shillings in their pockets instead of riotously squandering them on the opera or wrestling matches. Again, if in a district where a superabundance of moralists abound, the engine and the van, instead of giving a nightly performance, of interest perhaps too narrow save to the poet or those interested in mythology, might be shaped to represent vice fleeing in the face of progress, the subject of one of Mr. Watts' most beautiful pictures (not, alas! exhibited at the Royal Hibernian Academy).

What a field for the new art designer! How horribly repulsive could he make his evil engine, how radiantly beautiful his virtuous van! The new popular form of conveyance, the motor, meets with M. Sillard's special disapproval, and as an alternative for the long, rakish machines entirely suitable for the purpose that they have to fulfil, he suggests the form of a swan sedately moving, with neck proudly arched and pinions neatly folded to its sides. Now, why on earth should a motor look like a swan? The machine and the bird are as far apart as the poles, and the form designed by nature to clothe one of the most beautiful of the feathered tribe is in no way fitted to carry a gas engine in the place where its gizzard or some such part of its anatomy ought to be. A motor is a swiftly moving vehicle, and should be designed in a manner suitable to such, having due regard for lightness, strength, wind resistance, etc., and why the body should be distorted to represent a bird slowly swimming through the water, when it is in reality a machine rushing swiftly over the land, passes all comprehension.

One of Mr. Sillard's objections to modern designers of all crafts, save his chosen few "new artists," is that they have no imagination and slavishly copy old forms. We do not defend such slavish copying for one second, but as far as can be seen, surely the man who takes a bird as a cloak to his engine is far more guilty of the offence than he who, having duly studied those before him in his craft, adopts or modifies their ideas to suit his own requirements. M. Sillard would do well to call to mind the fact that the craftsman who has made a life-long study of his craft is far more likely to be right than the critic who has never had practical education on the subject. M. Sillard criticises the motor, and appears to consider he has the right to do so. What would he think of the engineer's criticisms of one of his own pictures; would he attach any value to it? I think not, and rightly too. No, let the motor swan be one of that of whom it was sung, I think by Charles Kingsley—

"Swans sing before they die—
T'were no bad thing
Were some to die before they sing."

M. Sillard meanders through several pages of this kind of suggestive reform, highly suitable to the young lady readers, with souls developed, we fear at times, at the expense of brains, readers of the numerous highly popular trashy magazines of the present day; but he rises to his highest pinnacle of ingenuity and artistic prophecy when he faces us with a view of a typical house of the future. A building confronts us with lines broken beyond the dreams of an artistic pupil, eills end in blocks, chimneys wriggle their snake-like way towards the vault of a summer sky, the hall-door writhes in a positive ecstasy of enjoyment, caused no doubt by its having become what it is, and the quoin of the building on the left of the picture winds, bends, and wobbles the whole of its length from cornice to base, a foot or two above which it straightens itself out in one wild effort to attain respectability, before ending its

inglorious career by dashing headlong to the ground. A lady and gentleman occupying the immediate foreground, presumably a future Edwin and Angelina; he doubtless is a volunteer, full of pride of race and military ardour, and stands as a soldier should stand, undaunted facing the foe; she, alas! weak vessel that she is, appears to have given up hope of succour, and gazes wildly at Edwin, one hand held to stay the beating of her heart; while in the other she firmly clasps a small object, presumably a poison bottle, which shall save her from the worst, should Edwin prove unequal to the task of overthrowing the rampant foe. There is another possible interpretation of the picture. Edwin is a descendant of M. Sillard, and as such is trying to induce Angelina to adopt his views on architecture, while she, poor girl, hesitates, uncertain which death to choose, that of poison, quick and painless, or that of living in the house slow and agonising.

A third reading suggests itself, can the man who stands there be the architect? If so, could he remain there unmoved facing his crime; could he address the girl, as he appears to be addressing her in accents calm and quiet; could he thrust his hands into his breeches pocket in that unconcerned manner; could he wear that Trilby hat, cocked slightly to one side, on his guilty brow? All our professional feelings rise within us at the thought, and shout the answer thunderingly: "No, ten thousand times no"—perish the thought. No criminal could stand there unmoved, undismayed, while the fierce sun beats down on his crime and its horrible result to humanity.

Again M. Sillard takes us into a room—"my lady's boudoir," "where the very proportions of the walls are rounded"—they most undoubtedly are, and not only the walls, but the lamps, doors, and numerous other objects, rather hard to define or understand, which float light as thistle down in space. Look at them again; they certainly are illusive, and it is somewhat difficult to grasp the object of their existence—perhaps they have none, and are just there so that "the proportion of the walls" will not feel lonely in its rotundity. What a humane and worthy effort at decoration. To turn to another aspect. How exciting the world will become to live in when M. Sillard's houses become general. On a dark evening, if one is desirous of calling on a friend, a dim object will loom up against the grey sky of a winter night; and unless one is certain of the way, what a pleasing uncertainty will arise as to whether the aforesaid object is a house, a clump of trees, or merely a broken-down motor car. Eventually, perhaps, one discovers it to be the dwelling of one's quest, and after hunting round for some time one finds an opening and enters in the foolishness of one's heart believing it to be a door, to discover too late that it is the kitchen chimney; a wild clutch at something that fails to stop one, and then a hurried and unrehearsed descent into the tomato soup, feet foremost, and a cheerful if somewhat Bohemian greeting of the delighted cook. How interesting, how splendid for art, how glorious for the liver!

I am not familiar with M. Victor Sillard's name as a painter, nor can I call to mind ever having seen any of his pictures, but it seems a pity that a man of his fertile imagination should waste his talents in painting, when nature has obviously and certainly intended him to become known to fame, as a contributor to humorous literature.

Taking M. Sillard as an example of the extreme school of designers, let us try to draw a conclusion.

The present craze among a certain class of designer is greatly to be deplored, not on account of its originality, but on account of the lack of study of the people who have gone before. We, none of us I suppose, want a designer, be he architect or stained-glass cartoonist, to simply copy the men who have done his work; but to produce good original work, it is essential to study the examples of one's own craft, and then to adopt or modify many of the main principles to our requirements of the present day. But to throw aside the methods of one's predecessors merely because they were such, is nearly certain to be ineffective in its result. To produce good, original work that will live. I believe, for my part, that we should get thoroughly familiar with the work of all ages, examples of which we are

doing, and when a real insight is gained, then it is time to be original.

To be just, the present movement has done a lot for the crafts, shaking off as it has the hide-bound convention of the Victorian era; and it has many very excellent points, its honesty of construction being one, and its simplicity and restraint being others. And it also has in its forms, taken from nature, been discreet in its treatment thereof, not attempting to be too natural, but often conventionalising forms of flowers, etc., in a pleasant and entirely satisfactory way. Inasmuch as it has done this, the movement has been good. But I believe the men who have done good work, such as Morris, Voysey, and as a decorative artist perhaps one may include the late Aubrey Beardsley, are all men who have studied and worked on the same lines as the men of the last generation, before they branched out in original design.

To this restrained and careful class of work, then, let us give all admiration and praise. But to do good work ourselves, let us exercise restraint and not strive after originality because it is originality; and do not let us create new forms, unless we are sure they are better than the existing, and are not what, for lack of a better term, I must describe as self-conscious, which is to the observer a mark of failure in anything, be it architectural or other art.

T. SQUARE.

LABOURERS' COTTAGES EXPENDITURE AT MONAGHAN.

The expenditure on labourers' cottages in the Monaghan Union formed the subject of some discussion at the last monthly meeting of the Monaghan Rural District Council. The Local Government Board wrote stating that they had before them the application of the Rural Council for the sanction of a loan of £3,360 for the purpose of providing 16 labourers' cottages authorised by the Council in 1906. The average cost of each cottage would be £210, which the Board considered would be too high expenditure to incur in providing an agricultural labourer with house accommodation suitable and sufficient for his needs, together with a garden allotment. The Board were aware that the average cost of the cottages provided in this district under previous schemes was somewhat in excess of the amount applied for. The estimated cost of building and fencing was at the rate of £135 per cottage, which was reasonable; but the estimate for the legal, engineering, and other incidental expenses, amounting to £35 a house, appeared to be excessive, especially in view of the provision contained in the Act of 1906 for simplifying the procedure for making title to the lands authorised to be acquired. After discussion, it was decided to inform the Local Government Board that the Council could not see their way to reduce the estimate, as the expenses were almost already incurred.

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OUR SOUTHERN LETTER.

(FROM OUR CORRESPONDENT).

Proposed Sanatorium for Consumptives.

Mr. P. C. Cowan, M.I.C.E., Chief Engineering Inspector, Local Government Board, and Dr. Biggar, Medical Inspector, held an enquiry at Cork, extending over four days, into the petition of the Cork Joint Hospital Board for the erection of a sanatorium for consumptives at Myshall, near Dripsey.

The evidence brought forward was both interesting and exhaustive, and dealt with the suitability of the site, the probable injury to the neighbourhood, and the likelihood of the Cork water supply being affected by the probable pollution of the River Lee from its tributary, the Dripsey river, which flows close to the site of the proposed sanatorium.

Mr. R. Evans, C.E., the architect of the proposed scheme, gave evidence, and described the particulars of the proposed works.

The site for the buildings is at an altitude of 330 O.D., about 120 yards from the river, protected by trees on the north, west, and east, with a southerly aspect.

It is intended to construct buildings of two storeys with walls of concrete. A central block, with recreation room and library, with a wing at each side, each containing twelve bedrooms, and the same repeated on upper storey, all heated by low pressure hot water. There would also be accommodation for doctors, matron, and servants; and kitchen, with its auxiliary rooms, at back.

There would be accommodation for 60 patients. The buildings are to be lighted by electricity.

The sewage would pass through septic tanks into contact beds, and through several filters, and then over the land.

The following are the estimated costs of the different works:—Buildings, £8,635 14s. 2d.; plumbing, £288; drainage, £812 8s.; heating and hot water supply, £585 16s.; kitchen and electric lighting, £1,686 10s.; total, £12,008 8s. 2d.; furniture, £772; land, £3,650; contingencies, £1,219 11s. 10d.; gross total, £17,650.

The area of the land proposed to be taken is about 150 acres.

Medical evidence was also brought forward dealing with the suitability of the site, and also dealing with the likelihood of the contamination of the river through the patients expectorating into the water.

Mrs. Bowen Colthurst, of Dripsey Castle, opposed the scheme owing to the danger to the district, and the Cork Corporation opposed on the grounds of the danger to the city water supply.

Goulding's New Works.

The premises of Messrs. W. and H. M. Goulding, Ltd., The Glen, Cork, which were burned down last May, are now nearly completed, and are being reconstructed on the most modern principles, and includes new ovens, conveying towers, and large lead condensing chambers for the manufacture of sulphuric acid from sulphur pyrites.

There is also a new grinding house and grinding mills for the treatment of a raw phosphate of lime, with screw and belt conveyors to storage hoppers. The whole grinding plant is driven by a Tangye's producer gas engine. The phosphate is then dissolved in the sulphuric acid in a series of close chambers which produces the fertilising cakes which are passed through pulverising machinery and reduced to a powder, which is then matured and screened, and is ready for the market and sold to the farmer as a fertiliser.

The whole of the buildings are from the designs of Mr. Fradley, the Company's engineer, and have been carried out also by him, and the total cost of the work when completed will be £25,000.

The Father Mathew Hall.

A new hall has been constructed in connection with the Father Mathew Total Abstinence Society, from the designs of Mr. J. F. McMullan, architect, and erected by Messrs. J. Delany and Co., builders. The painting contract has been carried out by Mr. P. H. Curtis, and the electric light installation has been executed by the Cork Electric Tramways and Lighting Co., under the supervision of their engineer, Mr. H. Nalder.

Drimoleague Dispensary.

The Skibbereen Board of Guardians propose to expend the sum of £600 in building a dispensary residence at Drimoleague, and invite engineers to submit plans with specifications, quantities, and prices for residence, out-offices, fencing, etc., not exceeding the above sum. "The person whose plan is finally approved of and adopted to receive a prize of £5."

It can readily be understood that the engineer who submitted plans, etc., under the above conditions would become a person by the time he was entitled to receive "the prize of £5."

A SERIOUS DOMESTIC BOILER EXPLOSION.

The other day, at Accrington, two deaths resulted from the explosion of a kitchen boiler, while a third person was so seriously injured that it is feared that another life will be lost.

At the inquest evidence was given as to the cause of the accident. The boiler, it was stated, was of the type known as a "push boiler," being fixed at one side of the fire range. Water ran into it direct from a tap at the slopstone, and when cold water was projected into the boiler through the supply pipe, hot water was ejected through the exhaust pipe running to the slopstone.

Wilson Hartley, a working plumber, the tenant of the house in which the explosion occurred, and whose wife and two children are in hospital, stated that the pipes were frozen up in the morning, but he thawed them with hot water, and they were running freely when he left the house. His theory was that the pipes must have frozen up again.

A police-constable said that Mrs. Hartley told him that when the water ceased running she put hot water cloths on the pipes, and then beat up a good fire.

The Coroner said that an explosion was the inevitable result, and added that cast-iron boilers were more liable to explode than copper boilers.

The foreman of the jury suggested that a recommendation should be made condemning the use of this type of boiler, but the solicitor representing the owners of the property stated that there was a thousand such boilers in use in the district, and there had never before been an accident.

The Coroner said even the most perfect system was liable to accidents of the same kind if the pipe from the boiler became obstructed.

The jury returned a verdict of "Accidental death."

The type of boiler, so far as can be gathered from the evidence, does not appear to have been of a very satisfactory type, and there is nothing to show that any proper provision was made to ensure a proper flow and circulation, and it would seem as though exhaust pipe, cylinder, and cold water supply cistern had no place in this installation, and which, if our reading be correct, was of an eminently cheap and nasty type, and the fact that thousands of similar character have been in use without fatalities resulting is no argument, while the fact that the supply pipes froze so quickly a second time seems to point to faulty design. The "exhaust pipe" referred to in the evidence was probably a return pipe simply.

It is perfectly true, as the Coroner observed, that even the most perfect systems are liable to accidents, but this does not excuse cheap and dangerous construction. With a proper system in use, it is very rare to find the boiler exploding, though the cylinder sometimes collapses, and there is usually warning of failure through frost. We doubt very much whether the use of a copper boiler would have prevented the accident, which seems to have been immediately brought about by the unfortunate expedient adopted by one of the victims, and it is rather a pity the foreman's recommendation was not adopted.

OUR ILLUSTRATIONS.**The Architectural Association Sketch Book.**

Some little time ago the ninth volume, third series, of this most admirable publication was issued in the customary four parts, and fully maintains the splendidly high standard attained. The Sketch Book has included from time to time the finest published examples of English architectural draftsmanship, and anything more delightful than the superb quality of sketches it is impossible to conceive. No other publication fulfils the same object, or attains the same standard, while the reproduction is admirable. The present volume comprises sketches of some of the choicest works in England, Scotland, France, and Italy, rendered in pen and ink, pencil, or wash drawing, and in the form of most carefully measured and skilfully drawn work, with enlarged details and profiles of mouldings, together with a succession of charming sketches, and includes churches, colleges, and delightful domestic work.

As examples, we reproduce two sketches, taken at random, and the whole volume is practically of equal merit. In addition to those reproduced, we must mention a few others which particularly struck us—"Shipton Court, Oxfordshire," by C. Wontner Smith. The fine set of measured drawings of Somerset House, London, by W. Harold Hillyer. Alan McNaughton's sketches of the "Certosa Di Pavia," and the sketch of the Church of Villequier, Seine Inferieure. But where so much is good, it is difficult to differentiate.

THE "SQUIRREL" STEAM WASHING MACHINE.

The "Squirrel" is the name of a new patent steam washing machine for which a great saving of time, labour, and expenditure in the cleansing of household linen is claimed. Our illustration, showing the machine in actual use, will give an idea of its general appearance, from which it will be seen that it consists essentially of a portable stove and washing drum, other parts not shown being a cover and a receiver for the clothes. The machine is made in six sizes, ranging from the smallest, suitable for small households, to the largest, adapted for use in large hotels, hospitals, and laundries. One of the advantages claimed for the machine is the simplicity of the working, the invention doing away completely with the drudgery of the wash-day. The only real work appears to consist in gently turning the drum, which is so balanced on a spindle that the minimum of exertion is required. On the point of economy of time, the patentees point out that boiling, steaming, washing, and disinfecting are all carried out at the same time, and only ten to twenty minutes are required to thoroughly cleanse the articles contained in the drum. The least possible wear and tear of the clothes is also provided for, and the action of the machine is to remove the dirt by dissolving it by steam, while the rinsing water carries it to the bottom of the machine, where it remains, the construc-



tion of the galvanised tank into which it passes making it impossible for the dirt to re-enter the washing drum. As an instance of the economy effected, it may be mentioned that seven double sheets can be thoroughly washed at a total cost of 2½d.

A number of extra parts can be ordered together with every machine, thus multiplying the uses to which it can be put. Amongst these are a water-tank for preparing the necessary hot water for rinsing the clothes, and an ironing top piece made of cast-iron to turn the stove into an ironing stove for 6 to 9 irons. The machine can also be used on any kind of kitchen range, and may be employed as a fruit boiler, disinfecting apparatus for linen and clothes, foot and sitting bath, etc. The stove can be used for cooking, and, in short, each part of the machine is a very useful article.

The outside parts of the stove are of wrought-iron, and are, therefore, not liable to breakage, while the inside parts, being of cast-iron, provide against any risk of fire. Full particulars, with prices, etc., can be obtained from Messrs. J. A. John, Ltd., 73 and 73a Camden-road, London, N.W.

**BELFAST BUILDERS' ASSOCIATION.
Annual Meeting.**

The annual general meeting of the members of this Association was held on Tuesday, the 29th January, 1907, at 14 Arthur-street, Belfast. The president, Mr. John Martin, J.P. (Messrs. H. and J. Martin, Ltd.), presided. There were also present—Messrs. Robert B. Henry, J.P. (Messrs. James Henry and Sons); John Courtney (Courtney and Co.), W. J. Campbell (W. J. Campbell and Son), H. Keith, I. Copeland, J. M'Ivor, J. Lees, S. B. Thompson (J. and R. Thompson), W. H. McLaughlin (McLaughlin and Harvey, Ltd.), and J. McAuley, secretary. An apology for non-attendance was received from Mr. J. Miskimmin.

The minutes of the previous meeting having been read and confirmed, the secretary read the annual report of the committee, which was unanimously agreed to. The report was as follows:—"Your committee cannot report any general improvement in the state of the building trade, but the marked improvement in the staple and other trades in the city should give an impetus to the building trade, and is a reasonable indication of more prosperity therein in the near future. The prices of building materials still show an upward tendency, but, while the present unfavourable conditions continue, your committee regret that keen competition for contracts is leading to under-estimating prices and risks, detrimental alike to the successful competitor as well as to the whole building trade. Labour continues in excess of the requirements, consequently the prevailing rate of wages and the regulations affecting labour have not been disturbed. Additional risks have been cast on the employers under another Workmen's Compensation Act, which comes into operation on the 1st day of July, 1907. Your committee are carefully considering the measure, with the view of giving the members of the Association some practical suggestions thereon, and the secretary is in communication with the National Federation of Builders, whose wider experience and assistance may prove serviceable. Your sub-committee attended a meeting of the National Federation of Builders, held at Dublin in August last, and met with a cordial reception and a sympathetic interest in the welfare of this Association. The members of the Federation expressed unanimous approval of the contract form issued under the sanction of the Royal Institute of British Architects, and which was becoming almost universally adopted by the architectural profession and the building trade in Great Britain. Several leading members of the Federation explained the difficulties that had to be overcome during a period of years in achieving this form, and encouraged your Association to persevere in like endeavours, and, relying on the encouragement and support procurable for this and other measures through closer connection with the Federation, your committee had no hesitation in recommending affiliation. For the present, your committee do not deem it advisable to make any further statement regarding the desired conditions of contract. Your committee appreciate the careful attention given to this important matter by your vice-president (Mr. R. B. Henry, J.P.) and Mr. John Smith, and by your solicitor, Mr. J. C. White, and the secretary. Your committee regard with misgivings the tendency of the Belfast Corporation to undertake the execution of works more extensive than what was contemplated at the formation of the Works Committee. Public Corporation works of any magnitude should, as in the case of private jobs, be offered for competition and tender, and your committee will, in the interests alike of this Association and the ratepayers, watch such operation in future. The constitution and regulations of the Association are under the consideration of your committee, who hope shortly to submit their report thereon."

The election of office-bearers resulted as follows:—President, Mr. John Martin, J.P.; vice-president and hon. treasurer, Mr. Robert B. Henry, J.P.; committee, Messrs. W. J. Campbell, W. H. McLaughlin, John P. Corry, John Smith, J. Courtney, W. J. Stewart, James Lees, and S. B. Thompson. Mr. Robert B. Henry, J.P., was nominated as the Ulster representative on the Council of the National Federation of Builders.

Some general business having been considered, the meeting afterwards terminated.



A.A.I. JOTTINGS.

The visit to the completing section of the great housing scheme of the Dublin Artisans' Dwelling Co., known as the Mount Temple Estate, on January 30th, was conducted by the Company's architect, Mr. C. Ashworth. Over embryo streets, with houses rising from the soil, our poetic sentiments were shocked at the thought of the orchards removed for the operations.

* * * *

The work is a fine example of how to grapple with a big undertaking of the sort, and the absent members of the A.A.I. lost a fine opportunity for instruction. Having been shown the maps and plans of the present and former schemes, and gained useful information as to the methods adopted in carrying them out from the preliminary survey in the direction of setting out, levelling, road making, etc., we proceeded to the joinery store and concrete moulding shed, where the quantity of framed timber ready for houses, the sites of some of which are only marked out, gave an example of the up-to-date methods of the works. The moulding of concrete cills showed a great advance on the common plan.

* * * *

The houses of this particular section are of three types in plan, *i.e.*, a three-room one storey, a three-room two storey, and a four-room two storey dwelling, the last built in two sizes. The rents procurable are from 5s. to 8s. per week. Concrete is used for the walling and partitions, excepting the fronts to the roads of the two-storey houses, which are faced with Dolphin's Barn bricks, bonded every fourth course to the concrete. This, we learn, makes a more weather-proof wall than if of single brick throughout. The dressings are of Arklow brick, which, for the arches, are made ready for use, thus avoiding cutting. The steps are chiselled granite. The slates used are Welsh Bangors. The entire area under the boarded ground floor is laid with concrete covered with a thick coat of pitch and tar, the space between the boards and concrete being thoroughly ventilated. Engert and Rolfe's damp course is used on all walls. The small skirtings of wood out of a square section and secured to floors have much to commend them. Each yard contains a special intercepting trap, bearing the initials D.A.D., and receiving but one pipe from the w.c. in yard, and the pantry or scullery waste by a channel, saving all gullies, etc., and arranged so that there are no sections of the drains which cannot be commanded in case of stoppage. Each house—a perfect home of its class—has a neat "self-setting" range, a sink, a meat safe, and ample shelving. Of other things we saw, the macadam-maker is a powerful worker, the principle for dealing with road surface water admirable, and the workman's time-registering clock apparatus a perfect boon to contractors.

* * * *

The architect has every reason to feel gratified with the work being done by the Company's contractors, Messrs. Crampton, and with the superintendence given by Mr. Denis Hickie, the clerk of the works. These gentlemen were present, and kindly assisted our tour of inspection.

* * * *

The contract will complete and form a continuous scheme of houses of seven different types, stretching from Arbour Hill to the North Circular Road, accommodating 1,250

families, and three shops. The streets vary in width from 50 to 37 feet.

* * * *

We are indebted to Mr. Ashworth for having devoted an afternoon to giving us the benefit of his experience. It is to be regretted that so few members took advantage of the opportunity to visit these works, at a time when so much interest is being taken in the housing question.

* * * *

There was a slight falling-off in the attendance at the last meeting of the Design Club. Mr. A. E. Bradbury, and the Hon. Secretary to the Club, Mr. P. L. Dickenson, read papers dealing with the "New Art." The former contended that while the modern fashion run wild has all the usual faults of an extreme, yet some of the leading features of "L'Art Nouveau" have much to commend them. Mr. Dickenson, in an amusing paper, dealt with the effect of the craze if sinuosity and exaggerated mouldings be carried to excess. Much discussion was evoked on the subject, which has never seriously caught on in the country, and after a pleasant and profitable evening, the members separated.

WEE MACGREGOR.

CEMENTIUM.

A Marvellous Cement.

Messrs. William Preston and Co., Great Brunswick-street, Dublin, have been appointed Irish agents for a new invention possessing remarkable characteristics. This is a material known as Cæmentium, described as a liquid porcelain, which, though not sticky itself, sticks everything. Hitherto, the nearest approach to an adhesive of the nature of Cæmentium have been the various preparations of fish glue, which certainly possess considerable merit for small repairs. They, however, have the great disadvantage of a disagreeable odour, and are very messy, in addition to which they will not withstand the action of water.

Cæmentium, on the other hand, is clean to the touch, creamlike in consistency and colour, will set as hard as stone, and is not affected by either water or heat. During the past two years it has been extensively tried by experts in various trades with the object of thoroughly testing it, and it has proved entirely successful. Amongst its uses, the following will appeal to a very wide circle of our readers. For domestic purposes, it may be successfully used to repair household or ornamental articles made of wood, glass, china, pottery, cardboard, stone, plaster, marble, ivory, papier-mache, amber, meerschaum, alabaster, or any metal, such as brass, copper, tin, lead, iron, steel, aluminium, etc. Practically, the only articles it will not mend are those made of vulcanite, rubber, and celluloid. For trade purposes, it can be used by umbrella makers, cutlers and tool manufacturers for fixing handles, piano makers for felting hammers, by tin-box makers in place of solder, and by plumbers for jointing earthenware fittings. Another of its uses quite different from any of the above-mentioned is its value as a protective and damp-proof paint. It thus appeals to builders for coating roof tiles or slates, and for preserving and waterproofing weather boarding or roofing felt. Cæmentium is fire-proof, damp-proof, and germ-proof, and is, in addition, a non-conductor of heat, so that if the roofs of houses are painted with it, it renders the rooms below cool and airy. A notable feature of it is that it will go on Portland cement without previous preparation of the surface.

It will be at once evident that a preparation adapted to so many different purposes must have a great future before it, and we therefore recommend our readers to give it a trial. We are ourselves putting it through a series of tests, and have no doubt that Messrs. Preston will be pleased to supply full particulars and quote prices for the various qualities of Cæmentium.

TENDERS.

Tullow.—The following tenders were received for the Tullow new General and Fever Hospital for the Carlow Board of Guardians:—Messrs. Collen Bros., Dublin, £4,624 12s. 1d.; Messrs. J. and P. Good, Ltd., £4,450; Messrs. Hemingway, Rathmines, £4,346 18s. 11d.; Messrs. McLaughlin and Harvey, Dublin, £4,340; Messrs. Thos. Thomson and Sons, Ltd., Carlow, £4,048 16s.; Mr. John Reid, Phibsboro' and Malahide, £3,785 (accepted). Drawings and specifications were prepared by Mr. James O'Donnell, A.M.I.C.E.I., engineer, Carlow; quantities by Geo. Metcalfe, surveyor, College Park Chambers, Nassau-street, Dublin.

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the "master-builder" has increased tenfold—frequently he is a gentleman who has succeeded to his father's business, without ever serving his time to a trade; sometimes he is a builders' clerk setting up on his own in the venturesome calling of building contractor. Day by day the ranks are swelled by men from Belfast and elsewhere, and by departments of "monster houses," builders' merchants, and so on. What is their present position? Work is scarce. The great public structures, the churches, and a large proportion of private dwellings are completed to an extent not warranting the hope that there will be much enterprise in this direction in the near future, and yet the numbers and the competition increase every day. The "monster houses" grow more aggressive, and the "small men" more enterprising, while the volume of work certainly does not keep pace. Jobbing contractors, painters and so forth, are more ready than ever to undertake building works of some magnitude.

The various schools of opposing political thought foretell great prosperity for Ireland. Will either party's ideal help building much? "Home Rulers" profess to see in Home Rule "the panacea for the nation's ills." "Unionists" look to a period of rest and political quiet. Will the ideal of either, howsoever completely realised, do more than maintain the *status quo*? We doubt it—for the reason that nothing from either policy points to any great building revival, but rather to economy and retrenchment.

Then as to engineering. Civil Engineering pure and simple is scarcely practised at all in the country outside of the offices of the Governmental and municipal departments. Yet the Engineering schools of the country, notably that of Trinity, the chief of them, were never so well filled as to-day. A few years ago, fifty students was a fair average of the number of men in the school; this year it is seventy. The great public departments of India and the Colonies—especially since the closing of Cooper's Hill—take a large number of the men, but in their own country there is little or no field for them.

Architecture is in much the same position, save that there is little or no field in India or the Colonies for it. Formerly the provinces afforded a "hunting ground" for the architect; few buildings of any importance were put up without the aid of the Dublin architect; the churches and other ecclesiastical buildings afforded him a field for his work. Now in every provincial town there are one or two architects, more or less, generally less, entitled to lay claim to that title. Anyone may call himself Civil Engineer, or Architect, while the opportunities of work grow fewer and fewer.

The fact is, building and engineering work has been overdone in this country, and, even allowing for the recuperation of affairs, there is no indication to show that the building trade will ever recover the prosperity of even ten years ago.

The net result is, that it is more and more incumbent upon builders, architects, and engineers to lessen the facilities for entry upon their callings rather than to encourage youths, unless possessed of a special aptitude amounting almost to genius, to enter upon their calling, if even the most modest of livings is to be found for either one or the other.

Nothing short of a great wave of industrial revival will help the country, and the signs thereof are more than overstocked. Should this overstocking be encouraged or discouraged? The efforts of the Architectural Association tend to increase the members of the competing boards. Is this an unmixed evil?

VOL. XI IX.

FEBRUARY 9, 1907.

No. 3

CONTENTS.

PAGE.

Topical Touches	81
Some Notes on New Art	85
Our Southern Letter	89
A Serious Domestic Boiler Explosion	89
Our Illustrations	89
A.A.I. Jottings	93

LEADING ARTICLE:—

Building, Engineering, and Architecture in Ireland	94
--	----

COMMENTS:—

Architects' Registration Bill	97
The "Small House"	97
Law Cases	98
Building News	100
Correspondence	102
Royal Institute of the Architects of Ireland	102
Engineering Items	105
The British Fire Prevention Committee's Tests	106
Engineering Enterprise in Canada	106
The Proposed Channel Tunnel	109
The De Laitte Air Gas Plant	113

BUILDING, ENGINEERING, AND ARCHITECTURE IN IRELAND.

The present position of the building trade and the engineering and architectural professions in Ireland afford much food for serious thought on the part of those engaged in these pursuits or contemplating taking them up as a source of livelihood. The building trade, totalling no less than five million persons, it is said, in the United Kingdom, constitutes the most numerous calling extant in these countries, if we include the allied trades, and probably the same ratio prevails in Ireland alone. If we add the arts or professions, as you choose to call them, of engineering and architecture, we get a brotherhood of vast proportions. What is the present position, and what are the prospects? Taking them in the order named, we get the building trades, important and numerous. The tradesmen connected therewith, the masons, bricklayers, carpenters, and so on, constitute a body of craftsmen which, although not certain of constant employment, are yet, by the inherent nature of those crafts, always certain of employment in some shape or form for the bulk of their members; so we may take the "building trade" as meaning the employers. What are the present state and prospects of that calling in Ireland—the ancient and honourable trade of Master Builder? Years ago—thirty years ago or more—practically every master builder graduated from the bench—served apprenticeship to his trade, and later embarked as "master" on his own account. Then the builders were confined to a very limited number of men who undertook large contracts, with a larger body of small men who did small works only. In the present day,

COMMENTS.

Architects Registration Bill.

The Council of the Institution of Civil Engineers have issued a circular to the members notifying that the Council have decided to ask all Irish members of Parliament to oppose the Architects' Registration Bill, which will come up for ballot or first reading, we are not quite sure which, very shortly, and the circular goes on to ask for the co-operation of the members in that endeavour. No reasons for this determination are advanced, and one can only draw inferences. We must suppose that the reasons which dictate such a policy are similar to those which, until lately, influenced the Royal Institute of British Architects in opposing the measure. The Council of the Institution declare the Bill to be "detrimental to the interests of the profession of Civil Engineering in Ireland." We can only conclude that this conclusion has been come to somewhat hastily. Other bodies have modified their attitude considerably of late years, being forced to the conclusion that something must be done to alter the existing state of affairs. Another instance is the Royal Institute of Architects in Ireland now heartily in favour of registration. Personally, we were by no means enthusiastic believers in either the efficiency or needfulness of registration until it was gradually forced upon us that some step in that direction had become absolutely imperative, not merely in order to protect the legitimate interests of qualified men, but to prevent the ancient and noble profession of architecture becoming in this country over-manned with hordes of ill-trained youths, only half educated as regards general culture, and utterly unequipped with any moderate store of professional knowledge, and being made the dumping ground for the failures and incompetent of other callings. It is by no means from choice, rather from necessity, that we advocate registration. We should prefer to see the old calling practically as free as in days of old, albeit that even then the master builder had, as a rule, to be first made free of his guild. It is perfectly notorious that to-day in Ireland boys are in increasing numbers dumped in when found unfit to pass the competitive examinations of the Civil Service, the banks, breweries, and railway offices—too backward in general education to be entered on the student rolls of the learned professions, and too wanting in that keenness and aptitude for affairs essential to ensure success in business. Such lads enter an office as pupil, improver, or even office boy. After spending therein anything from one to five years, during which time they trace drawings and copy letters, and secure in the knowledge that no test of their attainments will ever be made, scarce ever open a text book. At the conclusion of the variable period they dub themselves architects, while hosts of others do not even observe these small formalities, and graduate from builders' yards, land surveyors' and assistant county surveyors' offices, or attend a few classes in some local technical school for a few months. These men, whether they euphoniously term themselves "C.E.'s" of the "Architects and C.E." type, flood the country with cheap labour, and discredit both civil engineering and architecture as professions or arts, and very often they secure a lucrative practice as such matters go in Ireland. Everyone knows that this is not an exaggerated picture, and the status of the profession has undoubtedly been lowered during the past twenty-five years in Ireland to a considerable extent.

The amount of work available for properly equipped and educated men is now less than it was then, and how the ever-increasing numbers of those who, attracted mainly by the ease with which they may "qualify," are to maintain themselves by the honourable pursuits of their professions is an ever-increasing and more serious problem. Suffice it, that if something be not done, and that soon, youths of education and aptitude will in future hesitate to enter upon a calling which offers such attractions to the ignorant and lazy.

One would suppose that the Council of the Institution of Civil Engineers before committing that body to so serious a step would have taken the opinion of the general body of the members, and advanced some argument. If there be provisions in the Bill detrimental to civil engineers in Ireland, it does not seem an impossible task to get them so altered as to be of benefit rather than detriment. We observe that certain English and Welsh municipalities also oppose the Bill, the motive palpably being in favour of the maintenance of cheap labour.

The "Small House."*

We have just received a little book entitled "The Small House, its Architecture and Surroundings," by Mr. Arthur Martin, and have read it with much interest. "The cry is still they come." Books on reinforced concrete and on the design of small houses have been multiplied almost *ad nauseum*. Many useful publications have found place amongst the number, many impracticable works of "l'art nouveau" type run wild, and some palpably of the self-advertisement order. Mr. Martin's little book comes as a very refreshing antidote to such. The author very modestly declares that he writes not so much for the information of practising architects as of their intending clients, though from cover to cover it might well be read with advantage by even the most accomplished designer of small houses. Likewise, Mr. Martin confines his illustration to a few, but sufficient and well-chosen reproduced examples of artistic small dwellings, and refrains from stuffing page after page with his own designs, as is the wont of some architects with better publicly-known names who have written on this subject, now somewhat threadbare.

Mr. Martin's little book is not the rhapsody of an enthusiastic votary of "l'art nouveau" of the "bones and roots" school, but the production of a sensible man and an architect, tendering much practical common-sense advice to those about to build, free of the prevailing taint of advertisement.

Mr. Martin gives us his ideal of the small house, and it is one which is eminently sane and practical. There is some sound advice on "localities and sites." Personally, we are inclined to think that as a reaction from total disregard of sub-soil and choice of open site, there is of late a tendency to magnify the importance of soil and sub-soil, and the advantages of a wind-swept height, and at the same time to lose sight of the comfort and value of good shelter in this changeable and uncertain climate of ours, a point to which our forefathers undoubtedly sacrificed too much.

Not very much space is wasted upon the subject of "the plan," for which we have reason to be thankful, for if there be one subject more than another upon which we have been advised until we are perfectly addled, it is that of the plan of the small house. Mr. Martin's advice is sound and good. At the same time we cannot share his great belief in the value of the hall-sittingroom for very small houses. In the average small house it is a perfectly ludicrous affectation, and unbearable in the suburbs. The butcher's boy comes to deliver the Sunday joint while you are entertaining a friend in the "hall," while the grocer's pampered minion vehemently insists upon the disgorgement of the "returned empties" of that last dozen of stout, while you are negotiating some problem of ways and

* "The Small House, Its Architecture and Surroundings." By Arthur Martin. London: Alston Rivers, Ltd., Arundel-street, Strand, W.C. 1906.

means or purchase and sale with a man whom you desire to impress with a sense of your affluence and independence, in order that you may the better resist his blandishments, Mr. Martin deals with exterior effect and materials very sensibly in two chapters, likewise interior effect in a third. The kitchen quarters come in for some share of practical advice. "Pipes and wires," a chapter for which Mr. Martin is indebted to his brother, the Rev. J. S. Martin, is both handy and useful. His remarks on the alteration of old houses are to the point. Anything more awful than some efforts we have seen to tear and mangle an old cottage into a villa cannot be conceived. The "jerry" builder's "villa" is usually preferable and less offensive. The chapter alluded to might be read with advantage by all who traffic in such things. In his observations on sanitation, Mr. Martin seems rather too sanguine on the usefulness of so-called "fresh air" inlets (really vents). Our own experience is they are in too many cases worse than useless, unless a long way away from the house, and in nine cases out of ten, moreover, not needed. The faith of many architects in the docility of the wind to obey instructions, and enter at the "inlet" and emerge at the "outlet" or vent, is more affecting than convincing. Our own experience is that it will do nothing of the kind, and we some time ago in our own small dwelling had to lay a sod over the so-called inlet for fresh air.

LAW CASE.

Arbitration.—Donovan v. Butler.

This case, which, as already reported, was referred to arbitration, was heard by the arbitrators and umpires in July last. It arose out of a contract for certain additions to the Church of the Holy Family, Aughrim Street, Dublin, for the Very Rev. Canon Burke, amounting to about £5,000. Changes, both of addition and deduction, were made, and the works measured up by the surveyor, Mr. D. W. Morris, who furnished a copy of his account, showing a net deduction on the contract to the contractor, Mr. James Donovan, and to the architect, Mr. R. M. Butler. The contractor subsequently sent in a statement showing that instead of a saving on the contract, there should be an addition. The architect took exception to the form in which this statement was furnished, alleging that it constituted (admittedly) an entirely new account, and not an objection confined to specific items of the surveyor's account, as the contract required. (The contract was the old Institute conditions of contract.) The architect further called upon the builder to set forth his objections in the form above referred to. In default of the contractor's reply, the architect proceeded, after the lapse of 31 days, to certify for the balance shown by the surveyor's account. The contractor took exception, and applied to the Courts for an order to appoint arbitrators, alleging that his original statement constituted valid objections, which order the architect did not resist, and appointed Mr. Anthony Scott, M.S.A., as his arbitrator, the contractor appointing Sir George Moyers, LL.D., who, together chose Mr. R. Caulfeild Orpen, B.A., as umpire. The arbitrators and umpire sat together during many days, and heard the evidence and arguments on both sides.

Mr. D. B. Sullivan, K.C., and Mr. Philip White, B.L. (instructed by Messrs. Croker and Moran), appeared for the contractor; and Mr. Charles A. O'Connor, K.C., and Mr. John Bartley, B.L. (instructed by Mr. W. J. Morris), for the architect.

Mr. D. W. Morris, Surveyor, gave evidence for the architect, and Mr. W. Beckett (Beckett and Metcalfe) for the contractor.

Eventually an award was drawn, and taken up by the contractor, Mr. Donovan, who forthwith moved to set it aside as being bad in law, and as awarding him more than he claimed, the explanation of this being that the award was so worded as to give him not only

what he claimed, but what the architect had certified for in addition, which was, of course, absurd. The motion came before the Court of King's Bench, consisting of Mr. Justice Andrews, Mr. Justice Boyd, and Mr. Justice Wright.

Mr. D. B. Sullivan, K.C., Mr. Serjeant Dodd, K.C., and Mr. P. White (instructed by Messrs. Croker and Moran) appeared for the plaintiff; and Mr. C. A. O'Connor, K.C.; Mr. Denis Henry, K.C.; and Mr. John Bartley, K.C. (instructed by Mr. W. J. Morris), appeared for the architect. Mr. E. Phelps, B.L. (instructed by Messrs. Orpen and Sons) appeared for the umpire. Counsel for the parties and for the umpire agreed in admitting the award to be bad in law, and by consent the matter was referred back to the arbitrators and the umpire to draw a proper award, which if necessary may be prefaced by "a case stated" for the Court.

The parties had undoubtedly a radical difference of opinion. At the same time the protracted and still continuing litigation was largely brought about by the vague and contradictory wording of the conditions of contract, which the eminent counsel engaged argued from in two diametrically opposite ways, and both with show of reason.

Mr. D. B. Sullivan, K.C., who led for the contractor, described the conditions as "the fruitful parents of much litigation," an expression of opinion in which all concerned joined. As the proceedings are still *sub judice*, and consequently still undetermined, we refrain from any comment further than to observe that both parties have been put to very great expense, which, added to the costs of the abortive arbitration, probably at least equal the entire amount in dispute, and neither have as yet had any definite expression on the justice or otherwise of their respective views.

As the case raises most of the points usually the subject of disagreement in building contracts, together with other and more novel ones, we purpose, should an authoritative judgment ensue, to give our readers the benefit of the experience derived from this protracted litigation over a comparatively small contract. We intend having the case as soon as decided, prepared for publication under competent legal advice, and both parties will be invited to comment on the decision.

It is impossible to conceive any greater hindrance to domestic comfort than a smoky chimney. It is, moreover, useless to say, as do some makers, that any one cowl will cure any and every chimney, but a pattern which, scientific and simple in construction, and has proved in many instances an efficient smoke preventer and ventilator, is the invention of a young Dublin architect, Mr. J. J. Meagher, now resident in London. It is known as "Meagher's Economy" chimney-pot, and is made by Mr. J. C. Edwards, Ruabon, North Wales, in red and buff terra-cotta, and only costs 7s. 6d., packed and put on rail. Amongst its advantages are that it is not unsightly; the up-draught is free and unhindered; there are no movable parts, and it is cheap and strong.

* * * *

The energetic County Surveyor of Dublin, Mr. William Collen, sometimes has his work cut out for him, and carries on his steam-rolling under difficulties. In his last report to the North Dublin District Council he mentions that he was afraid the drastic reductions made last January in the amounts formerly allowed for the roads and steam-rolling had not resulted in the improvement of the roads during the year, and he trusted the Council would see their way to restore, and in some cases increase, the old prices, including that for steam-rolling. The amount passed last year for this work was exhausted on the 8th January, and large quantities of broken stone which was specified and supplied on some of the roads must, therefore, be spread on those roads without being rolled, or left in the depots until after the 1st April next. The expenditure on roads in North Dublin is over £11,000 a year.

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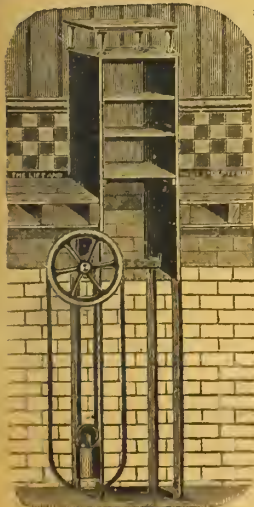
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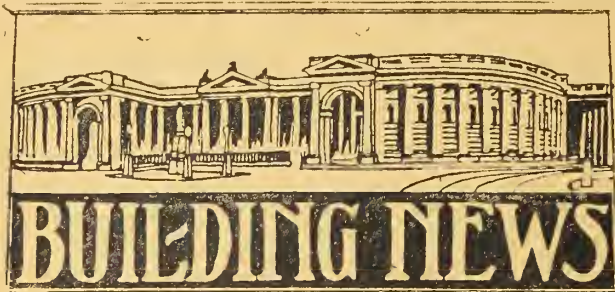
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Belfast.—Messrs. J. and R. Thompson, Ltd., have secured a contract from Messrs. Ritchie, Hart and Co., of Belfast, for a Ferro-concrete structure, additions to their present works, the entire roof of the new structure being Ferro-concrete, without any other covering.

Ballinasloe.—As will be seen from an announcement in our advertising columns, the District Asylum Committee, will, on March 11th, consider plans and specifications for the erection of 20 attendants' cottages. A prize of £15 will be awarded to that plan and specification considered most meritorious, and any other selected plan and specification may become the property of the committee for a second prize of £5. Plans must be lodged by the 8th prox.

Cork.—The restoration, after recent fire, of the premises of Denis Sullivan and Co., 12 Grenville-place, has been completed by William O'Connell and Co., Ltd., 19 Hanover-street, under the supervision of Mr. H. W. Flanagan, B.E., B.A., 2 South Mall.

Tenders have been received for erecting a posting establishment, with coach-house and stores, at 12 South Mall, for Mr. J. R. Cross. John Delany and Co., 25 Henry-street, was the successful contractor. The plans and specifications have been prepared by Mr. H. W. Flanagan.

Cootehill.—The Board of Guardians have decided to erect a new dispensary and dispensary residence for the Tullyvin district at a substantial amount.

Dalkey.—Mr. A. D. Price, Local Government Board Engineer, held an inquiry in the Town Hall, Dalkey, into an application made by the Urban Council for a loan of £900 for the purpose of laying concrete footpaths in the township. The Town Clerk said the borrowing powers of the Council amounted to £30,564, and deducting the amount of loan applied for last Monday, £7,200, they would still have an unexhaustive borrowing power of £14,000 at the end of the financial powers. The paths were to be laid down on the Harbour, Ulverton, Sorrento, Victoria, Vico, and Railway roads.

Dublin.—Tenders are invited for supplying the Royal Irish Constabulary Depot, Phoenix Park, with Roche Lime for glazing windows for one year from 1st April. They will be received on 28th February.

The Royal Zoological Society of Ireland are about to erect new open air carnivora dens.

The plans for the new Technical Schools in Bolton-street, have been prepared by the City Architect, and Mr. Jas. Mackey is now engaged in preparing quantities. It is expected that tenders will be invited in the course of the next few weeks.

Drumquin.—Tenders are invited for alterations and improvements to Lower Langfield Church, Drumquin, Co. Tyrone. Tenders to be lodged on 15th February, in accordance with plans and specification of Messrs. R. E. Buchanan and Co., Castle-street, Londonderry.

Kingstown.—The Urban District Council are about to erect new baths on the site of the old baths at Queen's-road, and tenders will be received up to the 13th inst. The plans and specifications have been prepared by Messrs. Kaye-Parry and Ross, Dawson-street, Dublin. Messrs. Beckett and Medcalf are the quantity surveyors.

Kenmare.—The Kenmare Rural Council, at the meeting on Saturday, 26th ulto., appointed Mr. George Lucid, C.E., assistant county surveyor, as engineer and architect in connection with the proposed scheme of labourers' cottages in the district.

Limerick.—The Committee of the Municipal Technical, Science and Art Schools are inviting tenders for a site for the proposed new Institute. The site is to contain at least 12,000 sq. ft. ground space, with a frontage of about 80 ft., and in a central position. Immediate possession will be required. Applicants are requested to give full particulars as to title, ground rent, and purchase price. Tenders are to be sent not later than 11 a.m. on Friday, February 15th, to the Principal Organising Secretary.

Lisburn.—The Lisburn Temperance Institute are having the cafe enlarged, a new ladies' recreation room built, and several structural alterations made. The tender is £865

for the work, and when the needful furnishings are supplied the total cost is expected to exceed £1,000.

In the First Presbyterian Church there was recently unveiled fourteen memorial windows. Six of these are from the firm of Messrs. Mayer of Munich and London, and represent the Good Samaritan, Job being comforted by his friends, Faith, Hope, Charity, and Fortitude. The others are allegorical, and were executed by Messrs. Campbell and Messrs. Ward, of Belfast.

Letterkenny.—The new Presbyterian Church at Letterkenny, Co. Donegal, is rapidly approaching completion, and will be an ornament to the town. The contracts for heating and lighting the building have been given to Messrs. James Lowden and Co., of Belfast. The architects are Messrs. Blackwood and Jury, Ms.R.I.A.I.

Londonderry.—The Department of Agriculture and Technical Instruction for Ireland are prepared to receive tenders from competent contractors for the erection of a building in Londonderry for the purposes of a Higher School of Domestic Economy in connection with Victoria High School, in accordance with drawings and specifications for same, which have been prepared by Mr. M. A. Robinson, C.E., M.R.I.A.I., M.San.Inst., Richmond-street, Londonderry. Tenders to reach the offices of the Department on the 11th of February.

Monaghan.—The new dispensary buildings at Emyvale, a village some five miles from the town of Monaghan, have recently been completed. The structure was built at a cost of £937. Out of a large number of tenders received, that of Mr. Henry McGeough, Old Cross-square, Monaghan, was accepted. The plans for the new buildings were prepared by Mr. W. A. Scott, architect, Dublin and Enniskillen.

Meath.—A new chapel and additions to the Convent of Mercy will shortly be commenced in Navan, at a cost of about £4,000. The plans and specifications are by Mr. T. F. McNamara, 50 Dawson-street, Dublin. Mr. D. W. Morris, 68 Harcourt-street, is the quantity surveyor.

Portadown.—The building of a new hall for the Y.M.C.A. is contemplated.

Queen's County.—The Mountmellick Rural District Council invite tenders for two labourers' cottages up to 19th February. Abbeyliex Rural District Council.—Tenders invited for two labourers' cottages to February 12th.

Thurles.—Tenders will be received for the erection of a new enclosure round the athletic track at Thurles Show Society's grounds. A new wing to the Diocesan College, Thurles, is about to be completed, under the supervision of Messrs. Doolin, Butler and Donnelly, architects, Dublin.

Wicklow.—The Rural District Council invite tenders to 11th February for four labourers' cottages according to the plans and specifications of Mr. Moore, C.E.

Waterford.—The Board of Governors of the Waterford and Bishop Foy Endowed Schools, Waterford, received tenders from building contractors for the erection of a new Primary School at Waterford, in accordance with the drawings and specifications prepared by Mr. William Friel, Chamber of Commerce Buildings, Waterford.

ARCHITECTS UNDER THE LABOURERS' ACT.

The following Rural and District Councils have advertised for architects under the Labourers' Act, 1906, the date of applications being given in brackets:—Cookstown, Co. Tyrone (Feb. 9); Inishowen (Feb. 10); Dunfanaghy (Feb. 8); Sligo (Feb. 9). The following Councils have appointed the gentlemen named:—Bandon, J. J. Murphy, Cork (7s. per plot and 2 per cent. on cost); Dungannon, Mr. Robinson, Belfast (4s. per plot and 1 per cent., subject to L.G.B. approval); failing Mr. Robinson, Mr. Hunter Lisburn (at 5s. per plot and 2 per cent.); Waterford No. 2, Mr. J. A. Ryan (5s. per plot and 1½ per cent.); Listowel, Messrs. O'Connell and McMahon; Youghal, Mr. E. Green.

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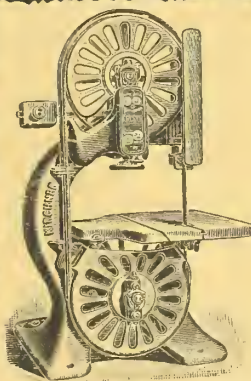
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The Prevention of Corruption Act.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

DEAR SIR,—In reference to the article appearing in your last issue, contributed by Mr. W. Johnson-Roberts, on the Prevention of Corruption Act, 1906, your readers are indebted to him for his careful consideration of the text of the Act and his lucid explanation of its terms. On the other hand, the instance given in the paragraph headed "Prime Cost Prices," of transactions coming within the scope of the Act, taken from the ordinary dealings between manufacturers and builders, on articles specified in the builders' contract to be of prime cost, is misleading and inaccurate in statement.

Mr Johnson-Roberts begs the whole question, when he states that the "houses allow him (the contractor) ten or twenty per cent. of a *secret*" commission or discount off such prime cost. This the contractor puts in "his pocket without the knowledge of his employer, although the latter has made him ample allowance for the use of his money." And, again, "If the builder agrees to pay certain sums for certain articles, he must pay these sums, and he cannot personally benefit by their purchase by secret discount or commission."

There are two fallacies in this paragraph of Mr. Johnson-Roberts' article. First, he takes it for granted that the relation of principal and agent exists in the case he gives, where employer or building owner, as he is usually called, undertakes to give a certain sum for works to be carried out by the contractor, and, second, that the building owner could buy the articles specified as *prime cost* at the same price as a merchant or contractor, or, in other words, that the building owner would get a better article for the amount specified in the contract, if the builder did not get a discount.

The first point I do not intend to discuss, as it is essentially a legal question as to how far the law of principal and agent applies to the case, but the lay mind usually looks on the builder or contractor as a principal and not an agent for the supply of goods in the contract.

Now, as to the second fallacy. It is well known to all connected with the building trade, and with all other trades, that manufacturers publish lists of all articles they manufacture, and these price lists are spread broadcast everywhere, both to traders and consumers, and the manufacturers allow discounts to merchants, traders and builders, and if anyone not "in the trade," including the building owner, buys direct from the manufacturers, he pays the full retail price. Does Mr. Johnson-Roberts wish to contend that the Act will enable the building owner, by employing a builder or contractor, to buy the articles from the manufacturer cheaper than if he bought direct, or, on the other hand, that the manufacturers should get more for the article than he did before the Act was passed, by not allowing any discount where goods are supplied to a builder for a contract? The former seems to be in his mind when he refers to the builder enriching himself at his employer's expense.

These two alternatives are equally absurd, and we are, therefore, brought back to consider what is the meaning of prime cost. This term is used by architects in the specification to fix the quality of the particular article supplied by the builder, the value in money being the only standard of quality. Now, all architects are aware that the builder and manufacturer, who are supplying the article, look on the prime cost as the full retail price of the article, which the building owner would have to pay if he bought the article direct himself. All architects know that the builder gets a discount off the retail price. The architect acts for the building owner, the knowledge of the architect must be considered the knowledge of the building owner, and there can be no question of the discount being a secret commission. In the general discussion of the Act, in the press and elsewhere, there is a consensus of opinion, and Mr. Johnson-Roberts has stated it very clearly, that, though not expressly enacted, it will be necessary, in nearly every case, to show that the principal has suffered some damage. Mr. Johnson-Roberts seems to lose sight of the fact that the builder, in making up his price for a contract, is usually

in competition with others. In practice, the builder bases his price to the building owner upon the cost to himself of all items, generally taking into consideration the discount he expects on prime costs. The building owner thus gets the benefit of the discount, indirectly, in the reduced price for the contract.

The only other ground on which the Act might apply to the case of the builder with a contract, is where the discount might be alleged to be given by the merchant or manufacturer as an inducement to the builder to buy goods from that particular merchant or manufacturer. This has only to be stated to refute itself, as it would be intolerable that the manufacturer or merchant, whenever the builder went to purchase goods, should have to question him as to whether the goods were required for a contract in which a prime cost was specified or not.

The safeguards suggested are not practicable. The builder could not, in making out his original estimate, specify all the commissions or discounts that he may ultimately get on prime costs, he can only estimate these, and is he to be debarred from asking from the manufacturers any larger discount that he has stated in his estimate, or would the building owner pay more for the contract, if the builder showed that he overstated his discounts?

It would be still more impossible to add the name of the person giving the commission; that is, to state from whom he would buy the articles specified as *prime cost*.

I do not propose to discuss the "cash discount," or the question, whether the builder is out of pocket at any time during the carrying out of the contract, as it is, really, too trivial, and, if it is suggested that it be made the subject of a criminal prosecution, the building owner, the architect, and the builder, will have a lot of trouble in adjusting accounts. I think they may safely ignore it.

On the whole, therefore, I think Mr. Johnson-Roberts' example is not well chosen, but it is an important matter that the position of the builder and the manufacturer, under this Act, should be fully discussed. I am sure many of your readers, like myself, will be surprised if this well-known trade custom should bring them "within the law," and would find it very difficult and inconvenient to alter their mode of dealing, which has been carried on honestly and in good faith for such a length of time.—Yours faithfully,

A MANUFACTURER.

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ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

The usual monthly meeting of the Council was held at 20 Lincoln Place, Dublin, on the 4th inst., Mr. W. M. Mitchell, R.H.A., President, in the chair. Also present—Messrs. A. E. Murray, F. G. Hicks, C. A. Owen, J. Holloway, H. Allberry, G. P. Sheridan, and James H. Webb, Hon. Sec.

A letter was read from the Institute of Architects of New South Wales, asking for information on the subject of the registration of architects.

Several letters were before the Council drawing attention to the inadequacy of the architects' fees laid down in the Local Government Board's Regulations for carrying out schemes under the Labourers (Ireland) Acts. It having been proposed to send a deputation to the Local Government Board about the matter, an amendment that the subject should be referred to a sub-committee was carried by a majority.

Owing to the increasing business that comes before the Council, a proposal was made that fortnightly meetings should be held, instead of monthly, but owing to the want of unanimity it was withdrawn.

Messrs. Page L. Dickinson, M. A. Hennessy, and Lucius O'Callaghan were elected members, and Mr. W. S. Barber, of Dundalk, was sent forward for ballot.

◆◆◆◆◆

The Cork Rural District Council are seeking to be invested with the powers of an urban authority in certain districts south of the city extending to Ringaskiddy, beyond Monkstown, for the purpose of effecting the public cleansing of the streets and roadways, and erecting public conveniences; and also for the purpose of the public lighting of certain portions of said districts.



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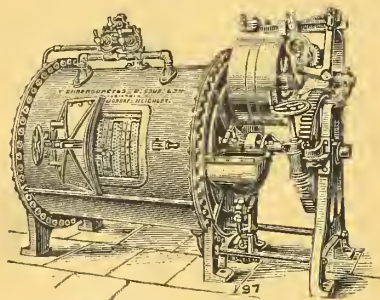
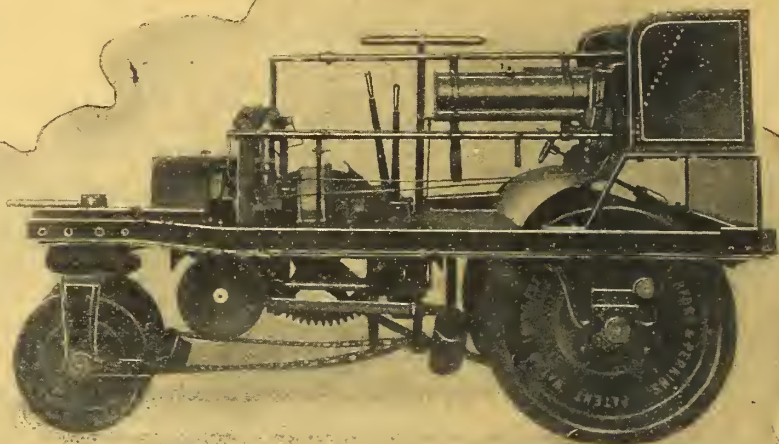
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ENGINEERING SECTION.

ITEMS.

One hears so many tales, most of them of respectable antiquity, about the lack of speed and frequent haltings on the Irish railways that it is somewhat refreshing to hear of similar sufferings in other lands. On the line from Rosmead to Graaf-Reinet, especially in the neighbourhood of Pretorius Kloof, boards are placed at frequent intervals warning the drivers not to exceed certain speeds. On the first board one meets is painted "speed not to exceed twelve miles per hour," on the second board ten miles per hour, and on the third eight miles per hour. It is told that a nervous passenger, noticing these boards, became anxious lest the speed should diminish to vanishing point before he reached his destination. Suddenly the train drew up at "Letts Kraal," and the stationmaster, in local dialect, bawled out: "Letts Crawl."

* * * *

The alarmed passenger, anxious to get on at any price, called out in reply, "By all means, but for goodness' sake don't let's go back."

* * * *

If not true, the tale is *ben trovato*, and reminds one of holiday travelling by night mail from Kingsbridge to Cork.

* * * *

The Engineering and Scientific Association recently held its inaugural meeting of the new session at the Royal College of Science, Dublin, the President Sir Charles Cameron, C.B., in the chair. During the proceedings the President called attention to the fact, often overlooked, that concrete is not in itself a sufficient preventive against the exhalation of noxious gases from the sub-soil. Municipal bye-laws are practically unanimous in the regulation that, in all but exceptional circumstances, a layer of concrete is to be spread under a new building. Concrete, at the best, is a semi-porous material, but in the manner in which it is frequently laid, it can only be considered a rough and ready sacrifice to a stringent regulation. The efficacy of concrete, as a preventive of damp and gaseous emanations, is materially improved if a cement surface is formed, floated with a steel handfloat, but a proper safeguard is obtained only if a layer of asphalt, at least half-an-inch thick, is superimposed. The cost of such method naturally militates against its general adoption, but if it were rendered compulsory there is little doubt that homes would be drier and healthier, and, in the battle against disease which is being ceaselessly waged, sanitarians and medical men would receive material assistance. The cost in a house of moderate size would be about £35, and even three pounds a year added to the rent of an ordinary house would be rapidly saved in doctor's bills, and in the capacity for work which an unhealthy home does so much to destroy.

* * * *

The year that is now almost forgotten was one of unbounded prosperity for shipbuilders, as is clearly demonstrated in the annual report on the industry issued by Lloyd's Register. The output in the United Kingdom created a fresh record for mercantile tonnage, and shows an increase of 205,000 tons compared with that of 1905, the highest previous record. Exclusive of warships, 886 vessels of 1,828,343 tons gross were launched in 1906. The war-vessels launched at both Government and private yards numbered 29, of 108,450 tons displacement; a total output of 1,936,793 tons. Of the 886 vessels, 815 were steamers and 71 were sailing ships, the tonnage of the latter aggregating 18,910 tons. The sales to foreign and Colonial owners for the twelve months ending November, 1906, reached a total of over half-a-million tons, Germany being, as usual, our chief customer. On the other hand, 2,956 tons (steam) were built abroad for British owners, and purchases from foreign and Colonial owners during the same period amounted to 58,600 tons, of which 3,100 tons were sailing vessels. It appears that the sailing tonnage of the Kingdom has decreased by 121,000 tons, and the steamer tonnage increased by 885,000 tons. The three largest steamers launched during the year were the *Lusitania*, 32,000 tons; *Mauretania*, 32,000 tons; and the *Adriatic*, 23,950 tons, of which, it is interesting to note, the two former have been fitted with turbine engines. The comparison of British and foreign shipbuilding is extremely satisfactory from a national point of view. The

output in the United States for the same period was 441,000 tons; Germany, 318,000 tons; Holland, 67,000 tons; and Norway, 61,000 tons. The total number of vessels built abroad was 1,258, the aggregate tonnage being 1,091,420; of these about one-third were sailing vessels, of 106,807 tons total.

* * * *

Mr. James Swinburne recently read a most interesting paper before the Institution of Electrical Engineers, and, in the course of his remarks, reviewed the situation created by the introduction of new metallic filament lamps in lieu of the carbon type in general use. Tantalum, osmium, tungsten, girconium, and many other curiously named metals are now utilised, and the lamps are of high efficiency, taking about one watt per candle in lieu of 3.5 to 4 watts as in the ordinary carbon lamp. Their present disadvantage lies in the fact that they cannot be made in small sizes for voltages above 100 or thereabouts; and the ordinary householder is thus debarred from the economy that their use would effect. At the same time, with present consumption a higher candle power can be obtained, and there is little doubt that a high efficiency metallic filament lamp, giving 50 candle power (in lieu of 16) for 60 watts, and to run at 220 volts, will be in great demand once its introduction becomes popularly known. In other countries the voltage is much lower, and the manufacturers have hitherto only turned out lamps suitable to the conditions with which they are most acquainted. The carbon lamp meanwhile holds the field practically undisputed, and it is satisfactory to learn that the Engineering Standards Committee have issued their specification for such lamps in order to obtain an even quality. The average efficiencies specified for 16 c.p. lamps, for pressures of 110 and 220 volts respectively, with a life of 400 hours, are 3.1 and 3.7 watts per candle, and 3.5 and 4.1 watts per candle with a life of 800 hours. These values are somewhat above the average results obtained at present, although, as might be anticipated, they do not meet the claims of the makers, which are peculiarly exaggerated as to efficiency under normal conditions. It is anticipated that the specification will come into force about the beginning of July.

* * * *

Canon Carmichael, in his paper on "Dublin," read before a crowded audience at the Royal Dublin Society on Friday last, took up the position of the candid friend, and, by the tactfulness and humour of his allusions, his remarks were not met in that spirit which the candid friend may generally expect, and which he often deserves. *Inter alia*, he called attention to the great want of public spirit in Dublin in putting down the begging evil, which seems but to increase day by day, and the habit of promiscuous expectoration, which, despite warning notices in and on the trams and elsewhere, does not appreciably decrease. He voiced a plea for more beauty in our streets, and pride in the exterior of our houses. It is a curious fact that, while Dublin residential thoroughfare are probably the most gloomy and monotonous in the Three Kingdoms, the householders make but little attempt to relieve the depressing external appearance of their homes by flower-boxes and the judicious planting of creepers, which, at such small expense would, by the very simplicity of their background, add so much to the appearance of the streets. Although the Irish are noted for their æstheticism, their want of appreciation of the open spaces at their disposal, gives this universal theory a constant denial. Except for Stephen's Green, Leinster Lawn, the Botanic Gardens, and the People's Gardens—all of which are maintained by public funds—there is scarcely any attempt to beautify the city. Private enterprise is confined within the four walls of the home, and while, undoubtedly in many respects, Irish towns and cities are superior to those across the water, yet in others they lag far behind them. In this country the centres of population are usually situated amongst charming surroundings, the private houses, while monotonous, have a simplicity which is a decided merit, there is a general picturesqueness which cannot be found elsewhere, and an atmosphere which lends an enchantment peculiarly its own. With some energy displayed on the part of the municipality in putting down begging, street noises, and some other objectionable practices, the better maintenance and cleansing of the roads and footpaths, and some judicious tree planting, together

with some individual effort on the part of the householder, Dublin and the other chief centres of Ireland need not fear comparison with any of the cities of the Kingdom.

* * * *

The London *Chronicle* recently announced that a method has been discovered by which Sir William Crookes' idea of extracting nitric acid from the atmosphere can be carried out on a commercial basis, and that such system is in the hands of a body of English experts and engineers for development in the United Kingdom, United States, Canada, the Colonies, and foreign countries. A vast amount of water power has been secured in these countries in contemplation of the working of the system on a gigantic scale. Although at first blush the statement appears to be somewhat too good to be true, and one is inclined to class it with the many recent scientific canards which have withstood but a short time searching investigation, yet, having regard to the source of the information, and to the fact that for many years the problem has been under careful examination by men of the highest standing in the world of science, this latest sensational announcement would appear to have foundation on fact. The claims of the discoverers will, of course, be at once subjected to the severest criticism and analysis, and the scientific world will await with intense interest their substantiation. It is many years since that eminent scientist, Sir William Crookes, caused more than mild alarm by the statement that the world's food supply was rapidly giving out, and in the course of time, under existing conditions, the earth would cease to yield sufficient bread for its children. He further stated that he hoped, before his death, to discover the means by which the bread supply could be increased to meet the future demands of the human race, by depriving the atmosphere of portion of its nitrogen and applying this element to the production of wheat. From time to time rumours have been heard of the progress of the experiments, and several months ago it was declared that the problem had been solved. Nitric acid had been extracted from the atmosphere and fixed in ordinary lime, forming thus plant food, both ideal in nature and easy in application. The chief question remaining was whether such a process could be carried out on a practical commercial basis. We now hear that it can. If so, this generation will leave yet another discovery behind it of untold value to its descendants.



THE BRITISH FIRE PREVENTION COMMITTEE'S TESTS.

The British Fire Prevention Committee's testing operations for the current year commenced last week, and were devoted entirely to reinforced concrete floors.

There were present some sixty Government and municipal officials, and officers of fire brigades and insurance companies, including Sir James Williamson, C.B.; Col. Sir E. Raban, K.C.B. (Admiralty); Sir Henry Tanner, I.S.O. (H.M. Office of Works); Col. G. K. Scott Moncrieff, C.I.E. (War Office); Mr. W. T. Hatch, M.Inst.C.E. (Metropolitan Asylums Board); Mr. Johnson (General Post Office); and also the Chairman and Gen. Hon. Secretary, and nearly the whole of the Executive Officers of the Committee.

The first test with a reinforced concrete and brick-lined floor under a four hours' fire test, for classification as "Fully Protective," attained classification with a deflection of about 3 ins.

A hollow reinforced concrete floor, which was also put forward for test for a similar classification, obtained classification with a deflection of about 1-3rd in.

The load in both cases was 2½ cwt. per ft. super, and the fire temperature ranged between 1,800 degs. and 2,000 degs. F. Water was applied from a steam fire engine at the conclusion of each test for a period of five minutes.

These floor tests form part of an important series of tests with reinforced concrete structures, which are being conducted by the Committee on very elaborate lines.

Some preliminary load tests with sections of the hollow reinforced concrete floor were also undertaken, and these will probably serve as a basis for a systematic series of tests in this direction, the floor sections under investigation having 14 ft. and 28 ft. spans respectively to a width of about 2 ft. 6 in.

The official reports of the Committee on the tests will be published in due course



Mr. A. V. H. M'Cowen, of Belfast, has been appointed electrical engineer to the Salford Corporation, at a salary of £800 per annum, rising to £1,000. The Belfast Corporation is, however, anxious to retain his services.

ENGINEERING ENTERPRISE IN CANADA.

The Georgian Bay Canal.

Canadian engineers are about to emulate their American and Eastern brethren, by executing one of the largest projects that has yet been attempted in the way of canals. The waterway will be 425 miles long, with a minimum width of 300 feet at the bottom, and the minimum depth will be 20 feet. Of this only 32 miles will have to be actually cut, but for the remainder of the distance the existing waterways will have to be dredged and locked in order to provide proper accommodation for the large ocean-going steamers, which will load corn at Duluth and packing house products at Chicago, and convey them direct to any port in the world.

The complete route, the value of which can readily be traced on a map of Canada, starts from the north-east shore of Georgian Bay, along the French River, across Lake Nipissing, through a canal to the Ottawa River, which will require considerable dredging, then down stream, joining the River St. Lawrence at Montreal.

It is now eight years since the inception of the scheme in England, when the New Dominion Syndicate, Ltd., under the guidance of Mr. R. W. Parks, was first formed. In May, 1906, the Dominion Government renewed the charter rights of the Company, and gave the necessary powers to raise the requisite funds (£30,000,000) to carry out the scheme. The survey, which occupied close on two years, has just been completed, and plans, approved by the late Mr. Wisner, C.E. of Detroit, and Mr. H. A. Purdon, C.E., an English engineer, have been submitted to the Canadian Government. The actual working expenses are estimated at £20,000,000.

We cannot better describe the project than in the words of the manager of the syndicate, who recently stated that although the project is called a "canal," it is really scarcely such. A canal gives one the impression of a few feet of stagnant water, with half-loaded coal barges upon it, but this is a system of internal navigation for ocean-going vessels—a waterway created by Nature and presenting no physical difficulties—the linking together of existing deep and navigable stretches of lakes and rivers by means of only 33 locks, including double locks, which is a very small number for a distance of 425 miles, and which prove how carefully the survey work has been executed.

The canalisation will be mostly in the vicinity of the locks and of the summit level, and, when complete, will enable ocean-going steamers of 8,000 to 10,000 tons burden drawing practically up to 20 feet of water, and attaining a speed of from eight to ten knots per hour, to sail from Chicago, Duluth, or any other lake port, and proceed right through to any European port, or *vice versa* from any European port right into the industrial heart of America. Five years will be occupied in the construction. There being something like 1,000,000 water horse-power available, all the locks will be operated electrically, and the entire distance of 425 miles will be lighted at night in like manner, so as to more effectually cope with the anticipated heavy traffic.

Commenting on the commercial advantages to be derived from the undertaking, *Civil Engineering* states that the official returns of the tonnage on the great lakes from Chicago, Duluth, etc., in the United States, and from Fort William, Port Arthur, etc., in Canada, amounts to nearly 50,000,000 tons annually, several times greater than the traffic through the Suez Canal. It is highly probable that, given a route which will save 72 hours and a distance of 500 miles each way between Chicago and Europe, such traffic will be largely increased. The annual exportation of grain from the United States amounts to close on two-and-a-half million bushels, and of meat a million lbs., of which some three-fourths is sent to New York by rail, and one-fourth to Buffalo by water. There is little doubt that the new canal will capture practically the whole of this traffic, and the promoters are sanguine that the project will more than pay its way from the opening date. It is interesting to observe that this new route, to open up the northern shores of America and the Canadian North-West, will be entirely on Dominion territory.

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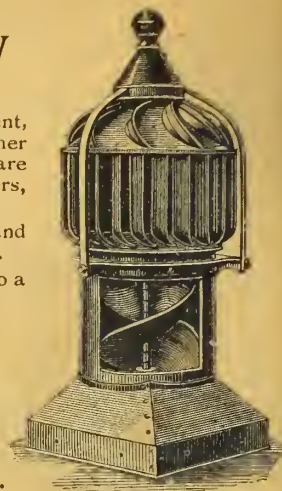
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THE PROPOSED CHANNEL TUNNEL.

The forthcoming Parliamentary session, apart from the political measures that are to be considered, will be one of extreme interest to the public generally and to engineers in particular, owing to the proposed introduction of a Bill by the Channel Tunnel Company, by which power is sought for the construction of a submarine railway, connected with the South Eastern and Chatham Company at Dover, and with the Northern of France and other lines on the French side. The tunnels will be lighted and the railway worked by electricity, generated at a power station on the Kentish shore, for which land will be acquired, and space will also necessarily be reserved for the deposit of excavated chalk.

Both in France and Great Britain the revival of the proposal to bring the countries into closer connection has caused keen excitement; in the former country the suggestion is universally approved, but, although at first the friendly relations now existing between the two peoples led to a favourable reception of the scheme by the British public, a gradual change is becoming daily apparent, and the opinions of those adverse to the tunnel, amongst which the majority of military experts is to be found, are gradually accumulating in weight, and the company's prospects are by no means as rosy as they were even three months ago.

However, notwithstanding the rapid cooling of British affection for a scheme which would make Paris almost a suburb of London with regard to the comfort of the traveller, the first stage in the progress of the Bill has just been taken, when the measure came before the examiners of Private Bills of the House of Commons for the examination of Standing Order proofs. These were found to be duly complied with, and the Bill was certified for first reading when the House meets next month. The formal motion for the first reading will be put down immediately after the close of the debate on the Address in reply to the Speech from the Throne.

Since the days when it was possible for the woad-clad Briton to stroll across the isthmus to pay an afternoon call on his Gallic neighbour, an intercourse which was rudely and apparently eternally interrupted by the incursion of the sea, man has been contriving, more especially in the last century, to resume an unbroken communication between the two countries. Some of the schemes were practical, many of them fantastic, but they may be roughly scheduled under three heads, the tunnel, the bridge, and the train ferry. The tunnel projects have been either for the ordinary tube, or boring through the earth under the sea, similar to that now proposed; built up passages, on the type of an enlarged sewer resting on the ocean bed; or a structure floating at some distance beneath low water level. The suggested bridges have naturally been of a recognised type, either of sufficient height to permit vessels to pass under at any point, or with certain spans on the bascule principle, through which ships could sail. There was, however, one modification of the bridge which deserves notice, by which the track would be submerged sufficiently to clear the keels of vessels, and on this, lofty structures would travel and convey the goods and passenger trains from shore to shore.

The train ferry explains itself, and is merely an adaptation of a method of transport already in use elsewhere in many parts of the world.

In 1802 a French engineer named Mathieu suggested to Napoleon a scheme for uniting the two countries by means of a tunnel under Dover Straits. The Varne shoals, which lie about midway between Folkestone and Boulogne, were to be utilised as a half-way house, and here it was proposed to form a harbour of refuge and a grand frontier town. It was thirty-six years later that another Frenchman, A. Thomé de Gamond, endeavoured to solve the problem, and after many geological surveys he concluded that the strata under the sea-bed presented insolvable difficulties to the construction of a tunnel. He therefore suggested the erection of a masonry embankment between the countries, in which openings should be left for the passage of ships. These openings were to be crossed by pontoons, or by means of submarine passages. When the traffic through the straits is taken into account, the effect of such a barrier

on navigation, on a dark and stormy night, can well be imagined; and this disadvantage, together with the cost, £35,000,000, were sufficient to smother a remarkable conception. At the time of the great Exhibition of 1851, when the discomforts of the crossing had added to the unpopularity of the Dover Straits, this engineer returned to the charge, and, having in the meanwhile modified his views as to the condition of the sea-bed, he proposed to construct thirteen artificial islands, on each of which a shaft should be sunk, and headings thence driven in opposite directions. This scheme won the approval of many eminent engineers, amongst them Brunel and Robert Stephenson, but political complications arose, and the project was shelved. But it was only scotched, not killed, and a somewhat simplified form of tunnel was again designed by de Gamond, and the plans exhibited in the Exhibition of 1867. Shortly after a practical scheme began to take shape. A Mr. William Lowe, of Wrexham, having carefully studied the geological conditions, concluded that a continuous tunnel, through the grey chalk from Fanhole, near the South Foreland light, to Sangatte, four miles west of Calais, would be a feasible undertaking. The tunnel was to be on the twin system, a pair of rails passing through each, connected at intervals by transverse passages. Lowe and de Gamond collaborated, and later James Brunel, Sir John Hawkshaw, and two other French engineers co-operated in the scheme. It was reported that the cost would be about £10,000,000, that the tunnel would occupy some twelve years in construction, and that there was a certain amount of risk during the execution of the work from the irruption of the sea. The matter lay dormant during the Franco-Prussian war, but early in 1872 the "Channel Tunnel, Limited," was registered in London to enable a trial shaft to be sunk on the Kentish shore. As is usual, no sooner had the scheme thus materialised than many rival proposals were suggested, few of which had much merit to commend them. The arguments and bickerings which ensued delayed serious progress, but at length the original scheme emerged victorious, an Act being passed in 1875 authorising the preliminary excavations in St. Margaret's Bay. Meanwhile, a French Tunnel Company was busy, and had received a concession from its Government, undertaking to expend, within five years, a sum of 2,000,000 francs in the preliminary investigations. Under this concession over 8,000 soundings were taken in order to ascertain the variations of the sea-bed, and a heading was commenced from a shaft sunk at Sangatte. The English company, however, failed to raise the necessary capital, and in 1880 its Parliamentary powers expired. The last scheme, under the leadership of Sir Edward Watkin, and the ægis of the Submarine Continental Railway Company, is within the memory of most, application having been made to Parliament to sanction two single line tunnels from Shakespeare Cliff, at Dover, at a cost of £3,000,000, exclusive of sidings and terminals. The Commission which sat in 1883 to consider these proposals, and also a revised scheme of the Channel Tunnel Company, disposed of the matter by declining to sanction a submarine communication between England and France, chiefly on the advice of military experts, and until recently the whole question has been in abeyance.

The present scheme provides for twin tunnels, each of which will be eighteen feet diameter, and, with the approaches, 30 miles long. The estimated cost of the work is £16,000,000, but this sum may be considered a modest forecast. The question whether the scheme will pay is doubtful; the anticipated receipts are based on an expected increase of passenger and goods traffic, the former, owing to the abolition of the sea journey and the inconvenience of changing from train to boat and from boat to train, the latter owing to the undoubted facilities the tunnel will give for through transport. It should not, however, be forgotten that the gauges of the English and French tracks differ by a small fraction of an inch, which, in the opinion of railway engineers, will necessitate either new rolling stock or an alteration of the platforms and the permanent way. The consensus of military opinion is, as heretofore, against any proposal to connect Great Britain with the Continent by land, for although the protection of the mouth of the tunnel would be an easy matter provided due warning were

received. it is quite possible that a surprise attack would enable the English end of the tunnel to be held by an enemy for sufficient time to enable reinforcements to arrive. With the cordial relations at present existing between England and France, the possibility of such an occurrence may be looked on as chimerical, but if an estrangement occurred, the task of guarding the tunnel would add greatly to military difficulties, and, in a moment of national panic, the tunnel might be flooded, the whole of the undertaking being thus destroyed, without the slightest possibility of its subsequent retrieval.

Therefore, although engineering science has made such strides in the last half century, and the omens are at present more favourable to the tunnel scheme than perhaps they have ever been before, it is highly probable that the Briton's love of insularity will again overcome his decided antipathy to *mal de mer*, and the present proposals will eventually share the fate of those upon which this article has briefly touched.

From an engineering point of view, the execution of the project would be intensely interesting, but its cost, difficulties, and subsequent dangers are calculated to outweigh any advantages that might be derived from its completion, and we are inclined to Douglas Jerrold's comment on an Anglo-French *entente* some half century ago, "The best thing I know between France and England is the sea."

THE NEW TECHNICAL SCHOOLS.

At the last meeting of the Dublin Corporation, Alderman Kelly mentioned that the plans for the new Technical Schools in Bolton Street had been approved of, and would be brought before the Council shortly.

Mr. Brady complained of the delay in connection with the carrying out of the scheme. He found that these schools could not be erected for about three years, and the legal proceedings had not yet been completed. Had the new lease been obtained from the Master of the Rolls? It was said that the plot chosen as the site for the new schools was to cost very little, but it would seem that the amount would reach £50,000 or £60,000, exclusive of the purchase of the site, and all consequent charges connected therewith, and that the plot would prove one of the dearest that could have been chosen.

Sketch plans have, we understand, been prepared by the City Architect, notwithstanding the representations of the deputation from the Institute of Architects, which, as we feared, came rather too late in the day to be effective. Had protest been made earlier, it might have had some result. At a previous meeting of the Library Committee, the City Architect was in attendance, and submitted plans for the proposed new Technical Schools, Bolton Street. After some discussion the plans were adopted, and it was directed that they should be sent to the Corporation for approval. Being the view of several members that the first storey of the front elevation should be entirely of stone, the City Architect was directed to ask for an alternative estimate to that effect, the stone to be worked in the city.

Mr. James Mackey, quantity surveyor, is preparing quantities for the new building.

IMPORTS. Port of Dublin.

January 24th—Per City of Berlin, from Hamburg, 130 tons asphalt, John Reinhardt and Sons, Ltd.

January 28th—Per Ellen Myranvy, from Irvine, 95 tons brickyard goods, Brooks, Thomas and Co., Ltd.; per Lady Hudson-Kinahan, from London, 880 sacks cement, J. M'Ferran and Co.

January 31st—Per Hopeful, from London, 350 tons cement, Brooks, Thomas and Co., Ltd.

February 2nd—Per Winga, from Goteborg, 18 cases glass, 23 bags turned wood, 5,169 pcs. planed boards, 500 bdls. laths, 120 poles, to order; per Aladdin, from Ghent, 5,700 bags cement, T. Archer.

February 5th—Per Glendun, from Middlesboro', 390 tons cement, J. P. Corry and Co.

February 7th—Per City of Frankfort, 200 tons of asphalt, Messrs. John Reinhardt and Son, Ltd.

Mr. E. Warren, Blackrock, has retired from the Council of the Master Builders' Association, but desires to state that this is not due to any want of sympathy on his part with the Association, of whose aims and objects he continues a warm supporter.

ENGINEERING NEWS.

Belfast.—The improvement Committee of the County Borough of Belfast have invited tenders for the supply, delivery, and erection of motor pumps and accessories, overhead travelling crane, etc., in connection with the Sydenham-Knock drainage scheme. Tenders close on 18th February.

Bundoran.—An inquiry was held in the Central Hotel, Bundoran, by the arbitrators, Messrs. Stewart, C.E. (Londonderry), Haire, C.E. (Dublin), and Dunlevy, solicitor (Donegal), into the claims made against the Ballyshannon Rural District Council in respect of the damage done to property in the course of the construction of the works in connection with the Bundoran sewerage scheme.

Ballymena.—The Board of Guardians will receive tenders up to 16th inst., accompanied by designs, for the erection of external fire escapes at the Union Workhouse.

Clare.—At a meeting of the District Council, the much-protracted subject of the Kilkee Waterworks was brought on by the Clerk, who said Sir Acheson MacCullagh, Medical Inspector to the Local Government Board, had a conversation with him during the week, when he stated that if the Council did not forthwith apply for a loan he was afraid the matter would be taken out of their hands. Mr. Kett pointed out that the members were now pursuing a "penny wise and pound foolish policy" in the matter, but the majority of the members would not yield to any entreaty, and declined to make the necessary application until such time as the Local Government Board satisfied them that the engineer's estimate of £4,000 would safely cover the outlay on the proposed works. At a subsequent meeting they expressed themselves satisfied about the estimate, and determined to comply with the requirements of the Local Government Board.

Dublin.—The tender of Messrs. Ross and Walpole, Ltd., has been accepted for the erection of two new boilers at the East Road Pumping Station. The amount of tender was £1,370.

Kilkeel.—The Rural Council of Kilkeel has instructed Mr. J. H. H. Swiney, M.Inst. C.E., of Messrs. Swiney and Croasdaile, Belfast, to prepare a scheme of water supply, which it is proposed to carry out at once. It is anticipated that a Provisional Order will not be necessary, as the water will be obtained under Act of Parliament, direct from the conduit of the Belfast Water Commissioners.

Moy (Co. Tyrone).—The Committee of the Killyman Co-operative Agricultural and Dairy Society, Ltd., invite tenders for the construction of sewage disposal and drainage works at their creamery, Moy, Co. Tyrone. Plans and specifications may be seen at the creamery office, or at that of the engineer, Mr. J. F. Peddie, M.E., 36 Scottish Provident Buildings, Belfast, from whom a schedule of quantities may be obtained on payment of one guinea, not returnable. Endorsed tenders to be lodged with the committee of the society not later than the 18th inst.

Monaghan.—At the monthly meeting of the Monaghan Urban Council on Tuesday, Mr. Thomas Trainor, Millstreet, Monaghan, was appointed town surveyor for one year only at a salary of £60.

Tanderagee.—Tanderagee has had rather an unenviable time latterly owing to outbreaks of illness, attributed to bad water, and the Urban Council, with a view to put an end to such an unsatisfactory state of affairs, has called in Mr. J. H. H. Swiney, M.Inst. C.E., of Messrs. Swiney and Croasdaile, Belfast, to advise as to the best means and cost of obtaining a suitable supply.

Trim.—Tenders have been invited for the construction of the new waterworks at Trim, according to the plans and specifications of Mr. F. Bergin, B.E., 36 Westmoreland-street, Dublin. Tenders close 11th February, 1907.

"STOPROT."

Messrs. Pilchers, Ltd., of Morgan's-lane, Tooley-street, S.E., have sent us a handsomely-bound diary, containing an insurance coupon for £1,000, and a "tint book," showing the varied colours in which their paints can be supplied. "Stoprot" is an absolute preventive of decay and dry rot in wood. It has been shown that one gallon of it will effectively cover 400 ft. super. of new boarding. Sir William Arrol and Co., Ltd., who—after an analyst's report that the samples they submitted were the purest—adopted it for the Tower Bridge over the Thames, with the result that it did not require repainting for eight years.

THE DE LAITTE AIR GAS PLANT.

The De Laitte gas plant, which has recently been introduced into this country by Messrs. Thomas Dockrell, Sons and Co., Ltd., of South Great George's-street, Dublin, ranks as one of the most reliable and economical petrol gas plants on the market, and for lighting purposes in situations where a self-contained plant is desired, we believe it fully merits consideration.

It is a well-known fact that the production of gas from petrol is no new idea; but there have been difficulties in regard to the method of its application and use, and it is claimed that the De Laitte invention has successfully surmounted these difficulties. The gas produced by this plant consists of a mixture of 85 per cent. atmospheric air and 15 per cent. of petrol vapour.

The method of operation is as follows:—The air is sucked into the carburetter into which petrol is mechanically dropped, a fixed quantity of air mingling with a certain quantity of spirit. The carburetting is effected cold, a notable advantage. The gas produced in the carburetter is compressed and driven through the piping into the gas holder, which works as a pressure regulator. The latter is so regulated as to suspend the making of the gas as soon as the holder is full. The motive power required for driving the machine is extremely small. In the case of a 50 light apparatus it is only 1-250th h.p. This power is usually supplied by means of a suspended weight, which can be wound up from time to time. It is also possible to drive the machine by means of a water or electric motor, the latter form of motive power being more particularly intended for larger plants.

The machine is neat in appearance and very compact. It requires little attendance, and owing to the fact that the gas is free from carbonic oxide and sulphuretted hydrogen, it is both cleanly and safe for all domestic purposes. It is claimed that there is absolutely no danger of explosion. Owing to the fact that the temperature of combustion of the gas is extremely high, the flame produced is very clear and white. The gas manufactured by De Laitte machines can also be used for all ordinary purposes of cooking and heating, and one of the most recent developments is the De Laitte gas motor generator, which has been specially designed for generating gas for driving gas engines. To a certain extent the generator is a suction producer, and the makers guarantee that the cost of running a 3 h.p. gas engine with this gas is three-halfpence per hour. Messrs. Dockrell have already installed a 70 light plant at the Augustinian College, Orlagh, Rathfarnham, Co. Dublin, the lights being of 58 c.p. each; a 30 light plant in Dr. O'Sullivan's residence, Waterford; and a 30 light plant in the Club and Billiard Rooms at Thurles, all of which, we understand, are giving extreme satisfaction. So far as the question of cost is concerned, we consider that the De Laitte plant is moderate in price, and further economical advantages are that it can be used in connection with ordinary coal gas fittings. It is adaptable for use with any incandescent burner, and it is claimed that mantles used with this form of gas have a longer life. With petrol at its present price, gas can be produced from the De Laitte plant at a cost of about 1s. 6d. per 1,000 cubic feet. We recently inspected a 30 light plant which has been fitted up in Messrs. Dockrell's showrooms, and were pleased with the light produced and at the simplicity of operation of the plant.

FOREMAN WANTED.—Builder's Foreman wanted to take charge large country job; must be capable man; state age, wages, and reference.—M.R. 126, this office.

FOR SALE—Single Vertical Spindle Molder, 24-inch table, by Elsworth. Complete with straight fence and safety guard, ring fence for circular work, rising and falling head; countershaft and reverse slotted rings; quantity irons, etc.; £10.—229, this Office.

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CONTRACTS.**DISTRICT ASYLUM, BALLINASLOE.**

The Joint Committee of this Asylum will, at their meeting on March 11th next, consider plans and specifications from architects and others for the erection of 20 attendants' cottages, each two semi-detached, on a frontage of 300 yards approx., each with a plot of ground to contain, counting area occupied by cottage and yard, one Irish rood.

These cottages shall have a kitchen, sitting-room, and three bedrooms, sanitary accommodation, fowl-house, and pigsty. They shall be built of Irish limestone, Irish slates, Irish laths, and all other materials and labour shall, when practicable, be Irish. They shall have a frontage parallel to, and a short distance from, the public road. Their total cost shall not exceed £110 each; but cheapness (consistent with efficiency) will be a main point in deciding relative merit.

A prize of £15 will be awarded to that plan and specification (in duplicate) considered most meritorious, which shall thereupon become absolutely the property of the committee, and any other selected plan and specification (in duplicate) may become absolutely the property of the committee for a second prize of £5. Plans and specifications in duplicate, marked "Plans for Attendants' Cottages," shall be lodged on or before Friday, March 8th next, with the Resident Medical Superintendent, from whom any further information may be obtained.

The judgment of the Joint Committee shall be final and absolute, all plans and specifications submitted being subject to this as a necessary condition.

The lowest or any tender not necessarily accepted, and the final decision may be postponed for two months pending the statutory approval of His Excellency the Lord Lieutenant to these plans.

By order of the Committee,

J. ST. L. KIRWAN,
Res. Med. Superintendent.

14th January, 1907.

TO BUILDERS AND CONTRACTORS.

The Department of Agriculture and Technical Instruction for Ireland are prepared to receive Tenders from competent Contractors for the Erection of a Building in Londonderry for the purposes of a Higher School of Domestic Economy in connection with Victoria High School, in accordance with drawings and specifications for same, which have been prepared by Mr. M. A. Robinson, C.E., M.R.I.A.I., M.San.Inst., Richmond Street, Londonderry. The drawings and specifications can be seen at the Architect's Office, and also at the Offices of the Department, and copies of the quantities obtained on payment of one guinea, which will be returned on receipt of a bona fide Tender.

Fully priced details, under separate sealed cover, must accompany each Tender, failing which the Tender will not be considered. Tenders, under seal and endorsed, to be addressed to

THE SECRETARY, Department of Agriculture and Technical Instruction for Ireland, Upper Merrion Street, Dublin, and sent so as to reach the Offices of the Department not later than MONDAY, the 11th of FEBRUARY, 1907.

The Department do not bind themselves to accept the lowest or any of the Tenders.

T. P. GILL, Secretary.
Department of Agriculture and Technical Instruction, Dublin, January, 1907.

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No. 4—Vol. XLIX

HEAD OFFICE

FEBRUARY 23, 1907.

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TOPICAL TOUCHES.

Colonel Edgar Flynn and Mr. P. C. Cowan have been appointed to represent the Local Government Board upon a Commission, appointed to enquire into the alarming state of the public health of Belfast.

* * * *

The Galway County Council, on Tuesday last, appointed Mr. P. J. Prendergast, of Athlone, as County Surveyor, in the room of the late Mr. James Perry. This brings to an end the interesting tenure of office by Miss Alice Perry, who was, on the 11th December last, appointed County Surveyor, *pro tem.*, in succession to her father. She has thus occupied the post for two-and-a-half months.

* * * *

The deadlock in connection with the Sligo Surveyorship has not been definitely arranged. It will be remembered that in December last, the Council, by a majority of one, elected Mr. W. F. Barry, of Monaghan, Mr. Robert Kirwan being only one vote behind. Upon investigation, it was discovered that one of the members of the majority was an undischarged bankrupt. Hence his vote was illegal, and Mr. Kirwan claimed to have been elected to the position.

* * * *

There were nineteen applications for the position, the following being the candidates:—Messrs. W. F. Barry, Monaghan; W. A. Checke, Dublin; Robt. Kirwan, Claremorris; Thos. J. Hamilton, Omagh; Alex. Agnew, Foxford; Jas. Hardiman, Ballinasloe; P. J. Prendergast, Athlone; R. J. Sullivan, Castlereagh; J. M. C. Lyons, Dundalk; E. A. Pryer, Axminster; J. S. MacLaghlan, Kincasslagh, Co. Donegal; J. Moran, Omagh; Simon O'Dea, Westport; P. J. McAndrew, Cork; J. J. Murphy, Cork; P. H. McCarthy, Dublin; D. McKinley, Cashel; J. P. Bergin, Dublin; W. F. Byrnes, London.

* * * *

The following have been appointed a Commission to inquire into the memorial of the Corporation of Waterford praying for liberty to build a bridge across the Suir within the county borough, and alleging that the present wooden toll bridge is inadequate for modern traffic:—Denis B. Sullivan, K.C.; John Purser Griffith, M.L.C.E.; Alexander M. Burden, C.E., County Surveyor of Kilkenny; William E. L'Estrange Duffin, C.E., County Surveyor for Waterford; and Edward H. Hackett, C.E., County Surveyor of South Riding of Tipperary.

* * * *

There is a good deal of humour often to be found in the reports of the Rural and District Councils when such questions as the appointments of architects and engineers come to be considered. Thus, at the meeting of the Bawnboy R.D.C. we find a resolution being passed to the effect that "the engineer insist on contractors carrying out their contract in accordance with the specifications." Not less humorous is the stipulation of the Killarney Rural Council, that applications for the position of engineers must be in the "candidates' handwriting." Killarney is evidently not going to have any illiterates.

* * * *

During the past three or four weeks, dozens of persons have been, under the variable designation of "Engineer" or "Architect," appointed by various district Councils throughout the country, to take charge of schemes of

great importance, under the new Labourers' Act, which sets free four-and-a-half millions sterling. In the vast majority of cases the appointments have been settled upon a basis of cheap tendering, or else personal or political influence. Skill, experience, or professional qualifications seem, in many instances, to have been the very last consideration to be thought of. The price placed upon their services by many of the successful candidates indicates that they regard them as practically valueless, or else had no intention of devoting to the duties of the appointments more than a fraction of the attention which their nature renders necessary.

* * * *

We hear that the builders invited to tender for the rebuilding of Messrs. Kapp and Peterson's premises, in Grafton Street, have declined to compete, because the new "Institute Conditions of Contract" formed the basis of the contract. This is a somewhat remarkable protest, inasmuch as the members of the Master Builders' Association have, from time to time, signed more stringent conditions, and which left far more power in the hands of the Architect than either the new or the old conditions, as many Dublin Architects used, and still continue to use, their own conditions of contract, never having adopted the Institute conditions. Without effectively increasing the architect's control, which, within the limits of fair play, should be the object of an architects' institution, the new conditions are somewhat aggressive in tone. One very well-known Dublin builder said to us of them, "that no man with any self-respect would sign them." The same contractor signed, without protest, agreements constituting the architect sole arbitrator on all points of difference. This is not, as might at first be supposed, inconsistent. There is a good deal of sentiment about it. The one agreement is brief, plain and to the point; the other somewhat obscure, and rather calculated to "rub in" an outwardly drastic code of penal clauses.

* * * *

No doubt employers could, in such a case as that which we are condemning, get their work done by competent builders outside the Master Builders' Association, but they would be losing the services of the largest and most experienced men in the trade.

* * * *

On the other hand, it is not to the interest or comfort of an employer (any more than it is to that of the builder), to encourage indiscriminate arbitration, or to abrogate the architect's control and judgment. The average business man, paying an architect, looks upon him, not so much as a designer, but as an official appointed to see the work properly carried out, and the provisions of the contract correctly observed. In fact, the business man, as a rule, sets little or no store by the architect's artistic powers; that is unfortunate, but must be put up with; and meanwhile, the legitimate use of his authority between employer and builder, if only it is fairly used, without fear or favour, does not make a man any the less an artist or a gentleman, as some of the "higher cult" seem to think; and it is no more than an employer has a right to look for—he is ignorant, as far as building affairs are concerned, his interests and the contractors' more or less conflict; some person of technical skill must see justice done between them, and to do so he must have reasonable powers.

A NEW FORM OF GENERAL CONDITIONS OF CONTRACT.'

Special to the "Irish Builder and Engineer."

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The following general conditions of contract have been drafted and printed for his own use by a Dublin architect, who tells us he has had much "bitter experience" of the defects existent in the old Institute conditions, and intensified in the new conditions. These conditions, while rather increasing the architect's power, make clear many things previously obscure, and avoid, as far as possible, repetition and contradiction. In view of the fact that the Dublin builders lately refused to tender for the rebuilding of Messrs. Kapp and Peterson's premises in Grafton Street, Dublin, on the new conditions of the Institute, the form we now publish should be interesting. The chief features are the reduction of "repeating clauses," and tautology and the omission of the "arbitration clause," which is, in our opinion, a fraud, both from a builder's and a contractor's point of view. Of course, an arbitration clause suitably worded could easily be interpolated. It is, briefly, an attempt to remove inconsistencies from the old Institute conditions, and bring them up-to-date without enormous increase of verbiage, at the same time fully preserving the architect's powers, and reducing the bulk of clauses. The conditions, as finally drafted, have *not* been settled by counsel, but the author has lately had many discussions on the subject with eminent Irish lawyers.

Conditions Subject to which these Works are Offered for Tender.

In any case in which Bills of Quantities, provided for the convenience of parties tendering, have been prepared, they can be had on application to the Surveyor, but neither the Employer nor the Architect guarantee, nor shall they in any respect be responsible for inaccuracies, if any, which may occur in descriptions or measurements so returned. Drawings and Specifications will in all cases be open for the inspection of parties desirous of tendering at the Office of the Architects, and Contractors may measure for themselves, if they think fit, or check the Quantities above mentioned. In all cases in which no Bills of Quantities are prepared, the person whose tender is accepted will be required to deliver to the Architect, before beginning the works, a detailed estimate giving such particulars as the Architect shall consider sufficient, to show how the total amount of the tender has been arrived at, and the prices or rates of the principal items upon which it has been based.

No claim for remuneration shall be recognised for trouble or expense incurred by parties in preparing estimates or offering tenders.

The lowest or any tender not necessarily accepted.

Tenders, with the blanks duly filled in ink, are to be upon the form provided for that purpose—none others will be entertained—and are to be delivered on or before the..... day of..... at..... o'clock, a.m., addressed to the Architect and endorsed with the name of the work.

The detailed estimate on which any sum, or sums, appearing in the Tender, have been based, duly priced out, and totted, in ink, sealed and endorsed with the name of the Contractor and the name of the work, must be delivered to the Architect before the Contract is entered into. The acceptance of any tender will be subject to this condition being duly complied with.

The detailed Estimate above referred to, and upon which the Tender that may be finally accepted is based, shall be retained by the Architect, the prices in it to be applied (in the manner more particularly set forth in conditions of Contract) for calculating the value of extra or additional works, omissions, or variations, unless at any time it should appear that such prices have not been fairly made up.

In preparing such Estimate, it is to be observed, that should it appear therein that any deduction has been made from the gross amount of the Estimate, or any section thereof, by way of percentage, so as to reduce the amount to the net sum at which the Tender is offered, each rate in detail, in being applied as a schedule of prices as above-mentioned, will be subject to reduction by a corresponding percentage.

No Tender will be accepted should it appear in the Detailed Estimate corresponding therewith that the value set upon old materials by way of deduction exceeds, in the opinion of the Architect, *bona fide* of such old materials

Conditions of Contract.
INDEX.

	Clause
As to Plans, Specifications, Copies thereof, and their Custody	1
„ Conformity with Plans and Specification	2
„ Plant, and Employer's Temporary Property therein	3
„ Setting out Work and Responsibility for Errors	4
„ Materials and Plant, Property therein when Delivered, Defective Materials, Workmanship, etc.	5
„ Protection of Works from Weather—Suspension of same	6
„ Completion of Works—Death or Bankruptcy of Contractor	7
„ Deviations, Omissions, Variations	8
„ Schedule of Prices for Extra or Additional Works and Omissions or Deductions	9
„ Clerk of Works	10
„ Architects' Control and Judgment	11
„ Payments	12
„ Insurance	13
„ Responsibility for Damages	14
„ Sub-letting	15
„ Provision of Sums in Specification	16

Note.—In the following Conditions and Specification of Works, the term "the Employer" is to be held to designate the one party to this Contract, viz.,.....
X.....for whom the work is to be executed; and the term "the Contractor" is to be held to designate the other party to the Contract, viz.,.....
X.....by whom the works are to be executed.

The term "the Architect" shall, in the case of death or inability from any cause of the Architect or Architects, or the survivor of them, whose name or names shall be subscribed to the Plans and Specification, be held to designate such Architect (being a Member of the Royal Institute of the Architects of Ireland, or a Fellow or Associate of the Royal Institute of British Architects) as the Employer shall appoint.

General Conditions.—Plans and Specifications.

1. One set of copies of the Contract Drawings and Specifications, together with such further drawings as may be from time to time required for the further elucidation thereof, shall be provided by the Architect to the Contractor for his own use, and the same are to be kept on the buildings in charge of a competent foreman, who is to be constantly kept on the ground by the Contractor, and to whom instructions can be given by the Architect.

Conformity with Plans and Specification.

2. Should there appear on the face of the drawings any work not described in the specification, or should there be any works described in the specification and not shown on the drawings, they shall be respectively taken as if described and shown in both drawings and specifications, and executed as part of the work contracted for; and in case of any discrepancy between the drawings and specifications, the Architect is to decide which shall be followed; and everything is to be done that is usual and necessary for the completion of the several works, comprehending what may be reasonably implied by or inferred from the drawings or specification, although the same may not be specifically mentioned. The Contractor shall exercise his own judgment as to the course of smoke flues, as he will be held strictly responsible for the proper working of the flues, and final instalment will not be paid so long as any defect in smoke flues exists, or faults of any kind remain unremedied.

Plant, Material, and Employer's Temporary Property Therein.

3. The Contractor is, at his own proper cost and charge, to provide all and every kind of plant, materials, appliances and labour for smoke and water testing the drains and sanitary fittings, if any, proper sanitary accommodation for his workmen, and everything necessary to complete the works hereinafter described or shown on drawings. All plant, materials, etc., to be of the most substantial description, and to become the property of the Employer as soon as delivered on the ground, and to remain his property until

the completion of the works, when all unused plant, etc., shall revert to and again become the property of the Contractor, but the Employer is not to be accountable therefor, or be responsible for any loss or injury thereto. All materials and workmanship shall be the best of their several kinds, or such as the Architects shall approve as suitable for the intended purpose.

Setting Out Work and Responsibility for Errors.

4. The Contractor is to set out the whole of the works, and during the progress of the works to amend, on the requisition of the Architect at any time, any errors which may arise therein. For setting out the work or for any other purpose, figured dimensions where given on the drawings are to be taken in preference to measurement by scale.

Defective Materials and Workmanship, etc.

5. The Architect is to have full power to require the removal from the premises of all materials and the re-execution of any workmanship which, in his opinion, is not in accordance with the Contract, and, in case of default, the Employer is to be at liberty to employ other persons to remove the same without being answerable or accountable for any loss or damage that may arise or happen to such materials; and the Architect is also to have full power to require other proper materials and workmanship to be substituted, and, in case of default, the Employer may cause the same to be supplied, and all costs which may attend such removal and substitution are to be borne by the Contractor.

Any defects, shrinkage, smoky flues, or other defects, which may appear within _____ months from the completion of the building, and arising out of defective or improper materials or workmanship, are, upon the direction of the Architect, to be amended and made good by the Contractor at his own cost, and in case of default, the Employer may recover from the Contractor the cost of making good such works.

Should the Architect see good and sufficient reason, he shall have power to sanction the substitution of a description of material or workmanship different from, or less costly than that specified; or should any material or workmanship be found at any time executed, without the special sanction of the Architect, of a quality or in a manner inferior to what is specified, to permit such to remain rather than require its removal, and in such case to deduct from the amount of the Contract such sum as he may consider reasonable.

Protection of Works from Weather—Suspension of Same.

6. The works shall be properly protected by the Contractor during frost, snow, or rains.

Should it, in the opinion of the Architect, appear necessary at any time to suspend the works, or any part of them, on account of the weather or other circumstances, the Architect shall have power to do so, and to award such extension of time for the completion of the works as he may think reasonable for such delay.

Completion of Works.

7. The Contractor is to commence the works within seven days after receiving possession of the site, and to complete the whole within _____ calendar months after the commencement of the same, unless the works be delayed by reason of extra works requiring, in the opinion of the Architect, extension of time, any inclement weather, or causes not under the Contractor's control, or in case of a combination of workmen, strikes, or lock-out affecting any of the building trades, for which, such allowance as he may deem reasonable, shall be made by the Architect, and then the Contractor is to complete the works within such time so appointed in writing, and, in case of default, the Contractor is to pay or allow to the Employer, as and by way of liquidated, agreed, and ascertained damages, the sum of (£ s. d.) sterling per week for every week during which they shall be so in default, and until the whole of the works shall be so completed, provided the Architect shall, in writing, certify that the works could have been reasonably completed within the time appointed.

The works, on their completion, are to be left in a clean, complete, and perfect state, and all rubbish which may have accumulated on the site during their progress is to be removed by the Contractor, unless otherwise directed by the Architect.

A certificate of the Architect, showing the balance due or payable to the Contractor, and marked "final," shall be conclusive evidence of the works having been duly completed, and of the amount due on foot of same.

In case the works shall not be carried on with all proper despatch, so as to afford, in the opinion of the Architect, a reasonable probability of their being completed within the period stipulated in the Contract, and which he shall certify in writing, or in case the Contractor shall die or become bankrupt, the Employer shall be at liberty, on giving ten days' notice in writing, signed by him and left at the Contractor's last known address, to enter upon the works, take possession of same, and employ such other persons as he shall deem proper, and shall be at liberty to use all scaffolding, plant, and materials that may be upon the ground to complete the buildings, and to provide all necessary materials and workmanship for the same, the cost of which and of any deficiencies, shall be ascertained by the Architect and deducted by him as liquidated and agreed damages for any moneys, including the drawback, due to the Contractor on foot of Contract or extra or additional works, and should there be no balance due on either contract or extra works, the Contractor, his Heirs, Executors, Administrators, or Assignees shall be liable for same.

Deviations, Omissions, Variations.

8. Deviations (by omission, addition, or variation) from the work as set forth by the contract plans and specifications, duly sanctioned by the Architect, shall not vitiate or annul the contract.

The Contractor is not to vary or deviate from the drawings or specification, unless upon the authority of the Architect, to be sufficiently shown by an order in writing.

The Architect shall have full power, during the progress of the work, to make alterations in the works, as set forth in the plans and specification, which do not involve additional cost. Any alteration which involves additional cost is to be borne by the Contractor, and no allowance shall be made for any work extra to the Contract unless same shall have been executed by the authority of the Architect upon a written order signed by him, and clearly specifying that such work is to be considered as an extra. A statement in writing of all work which the Contractor may consider extra to the contract, which may be done or be in progress at the date at which application is made for a certificate, shall be handed by the Contractor to the Architect at the time of making such application. Any such work which may be executed before the granting of the first certificate, or between the dates on any two consecutive certificates, but which shall not be so returned when applying for the certificate next following, shall not be considered as work extra to the Contract.

Schedule of Prices for Extra Work and Deductions.

9. The prices in the detailed estimate furnished by the Contractor to the Architect, marked "Schedule of Prices," shall form the basis for valuing all extra or additional works, omissions, or variations (unless at any time it should appear that such prices have not been fairly made up), and, as a Schedule of Prices, shall stand as part of this Contract; but the Employer shall not be responsible for the omission of items or the accuracy of the quantities or rates of prices.

Should it appear on the face of such detailed estimate that any deduction has been made from the gross total of the estimate, or any section thereof, by way of percentage, so as to reduce the net sum or sums to the Contract amount, each rate in detail, in being applied for calculating the value of additions, variations, and omissions, shall be subject to reduction by a corresponding percentage.

Where the Schedule of Prices does not apply, or where the Contract is for a lump sum, the Architect shall fix such rates as he shall consider proper.

The Architect shall have power at any time during the progress of the works, or after the completion thereof, to appoint a surveyor to check or measure up the works, or to measure up works which may be omitted, altered, or added from time to time, and price the same as hereinbefore provided.

The fees of such Surveyor are to be borne half by the Employer and half by the Contractor, and the Architect shall have power to deduct the Contractor's moiety from any moneys due to him on foot of the Contract.

When the Surveyor shall have made up said account, and a copy thereof has been furnished by the Architect to the Contractor, the Contractor shall, within twenty-one days from the receipt thereof, deliver to the Architect a statement in writing setting forth his objections (if any) to the said account, such statement detailing each of the several items so objected to, and accompanied by a statement of the reason for each objection in respect of same, and the Architect shall examine and inquire into such objections (if any), and may, if he shall think fit, alter or amend the said

account—and issue his certificate for such amended sum so arrived at.

In the event of no such objection being received, the Architect may, at the expiration of the aforesaid twenty-one days, issue his final certificate, which shall, in either case, be final, binding, and conclusive between both parties to this Contract.

Clerk of Works.

10. The Architect shall have power, with the consent of the Employer, to appoint a Clerk of Works, who shall be paid by the Employer, and, if the Architect shall so direct, have the custody of the copies of the Contract drawings and specification, and of all detail drawings and written instructions issued by the Architect during the progress of the works, to which he shall give the Contractor and his workmen access at all reasonable times.

The appointment of a Clerk of Works shall not remove, or in any respect alter or modify, the responsibility of the Contractor for errors arising in the work, under Clause 4.

Architect's Control and Judgment.

11. The Architect is to have at all times access to the works, which are to be entirely under his control. He may require the Contractor to withdraw from the works herein contracted to be executed any person in his employ, and the Contractor is forthwith to comply with such requirement.

The Architect may at any time make such openings as he shall think proper in work for the purpose of testing either materials or workmanship, and the Contractor shall make good same.

The decision of the Architect on all questions or disputes arising out of or touching the execution of the works, the meaning of the drawings and specification, the manner of the execution of the works, or the quality of the materials, the nature, quantity, and quality of the works executed or to be executed, or what amount was included in the Contract, or the amount and value of all extra, additional, or omitted works, is to be final, binding, and conclusive on both parties to this Contract.

Payments.

12. The Contractor is to be paid as the work proceeds, on the written certificate of the Architect, in amounts at the discretion of the Architect, but in no case more than eighty-five pounds sterling per cent. of the work done and materials used up to the date of such certificate. The balance, less any deductions made under Clause 7, shall be payable months after the date of the Architect's final certificate. The Contractor shall not be at liberty to demand any payments from the said Employer, nor shall the said Employer be bound to pay any sum whatever for Contract or extra works without production of said certificates, and then only for the amounts therein specified.

Payments on account are not to be considered as admitting that the work done is accepted, and it is therefore to be understood that the Architect shall have power during the progress of the works, and before the signing of the final certificate, to recall and to modify, or withdraw, as may be necessary or proper, his last or any former certificates, or orders for extra works given in error.

Insurance

13. The Contractor is to insure the building against loss or damage by fire, in an office to be approved, in the joint names of the Employer and Contractor, for half the value of the works executed until it shall be covered in, and thenceforth until completion in three-fourths of the amount of such value. He shall also insure against accident or fatal injury every person in his employ upon the said works, and shall hold the Employer harmless and indemnified against any claim upon the part of such persons or their representatives under the Employers' Liability Act, Workmen's Compensation Act, Lord Campbell's Act, or other statute providing for compensation to workmen or their representatives, for personal injury, and is, upon request, to produce to the Architects the policies and receipts for the premiums for such insurance.

Responsibility for Damages.

14. The building, from the commencement of the works to the completion of the same, is to be under the Contractor's charge, who is to be held responsible for, and is to make good all injuries, damages, and repairs occasioned or rendered necessary to the same by fire, storm, or any and every misadventure or accident, and he is to hold the Employer harmless from any claims for injuries to persons or for structural damage to property arising out of any

operation connected with this Contract, save and except actions or proceedings for loss of light and air, easements, or similar matters not within the control of the Contractor

Sub-Letting.

15. No portion of the works shall be sub-let without the consent of the Architect, and the Contractor is to be responsible for the proper execution of the works so sub-let, in strict conformity with the provisions of this Contract.

Provision of Sums in the Specification.

16. In the case of any sum or sums of money being provided by the specification for any work or materials, the Architect shall be at liberty to deduct same from the amount of the Contract, or otherwise apply such sum or sums as he shall think fit, and where articles are specified to be of a particular cost P.C., the Architect may call upon the Contractor to show to his satisfaction that such sum has actually been expended on the prime cost of such article by the Contractor irrespective of trade or other discount; and in case of his failure to do so, the Architect shall allow the Contractor only such sum as he shall think fit for such work, and his decision thereon shall be final, binding, and conclusive.

Prevention of Corruption Act.

The Contractor shall not be entitled to accept any trade discount or other consideration in respect of sums so specified, in accordance with the provisions of the Act for the Better Prevention of Corruption, 1906.



MODERN STAIRCASE CONSTRUCTION.

This is the title of an interesting pamphlet published by The Safety Tread Syndicate, Ltd., 15 Barbican, London, E.C., and dealing principally with Mason's Patent Treads. The essential feature of these treads, which are known practically all over the world, is a steel or bronzed grooved plate, the grooves being filled with lead. The effect of this combination is to provide a surface that resists wear almost indefinitely, and that never becomes slippery, the lead filling being the cause of the last-named feature. The treads are suitable for fixing on every variety of staircase (whether new or worn), wood, stone, granite, marble, concrete, or iron. They have been used in most of the great modern engineering works in England, including the underground electric railways, the Greenwich Footway Tunnel, the Blackwall Tunnel, the Kingsway and Aldwych Subways, all the underground conveniences in the City of London, Brooklyn and other bridges at home and abroad, and on railways in nearly all countries. Sections, details, and elaborate illustrations are contained in the pamphlet under notice, which is certainly well worth perusal. The pamphlet also deals with several other specialities to which Mason's patent is applied, including hydrant, man-hole, coal-hole, and other covers, pavement lights, etc. It can be obtained from The Safety Tread Syndicate, Ltd., at the above address or from the Belfast branch, 5, 7, and 9 Gloucester Street.

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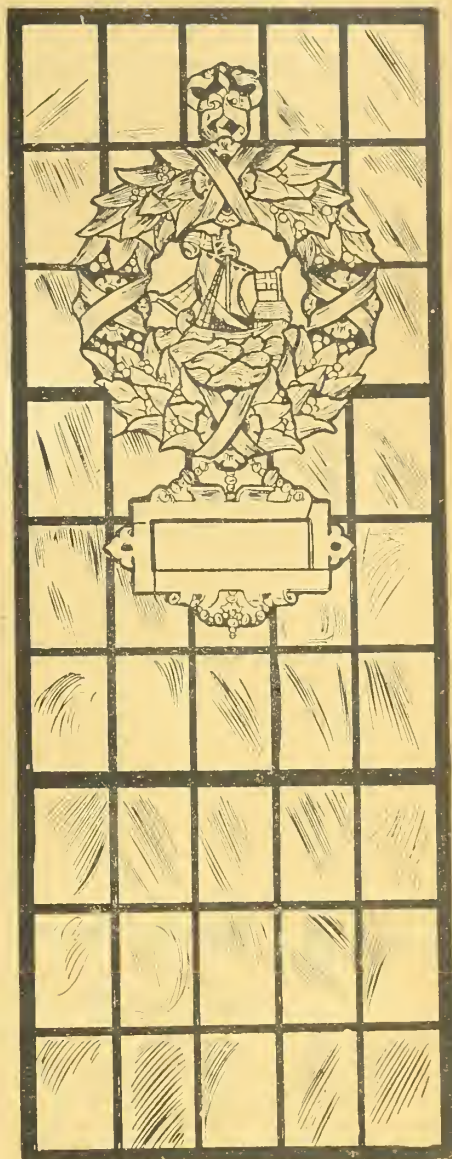
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BELFAST NEW CITY HALL.

The Stained Glass Work.

We have in previous issues described in considerable detail the features of the magnificent Municipal Buildings recently erected in Belfast, and have published illustrations of the complete structure, and of some of its salient characteristics, both internal and external. We have now great pleasure in submitting to our readers some details and a few sketches of the stained glass work, which forms no inconsiderable portion of the decorative effects of the building. It is worthy of remark that the decoration of the new City Hall has been conceived in the most artistic spirit, and has called forth the warmest commendations from many competent critics. In this connection also it is most satisfactory to Irishmen generally to note that some of the most important of the decorative contracts have been carried out with the utmost success by Belfast firms.

A conspicuous example of the excellence of local industry is furnished by the stained glass work, with which we are now immediately concerned. Leaded glazing in the City Hall was entrusted to Messrs. Campbell Bros., of Franklin-street, Belfast, who have recently come into prominence by the many beautiful specimens of their work to be seen in buildings over the whole of Ireland. The glass work carried out by this firm consisted of the following:—The four cupolas, dome buttresses, dome attic, inside doors, fanlights, and stained-glass windows on ground floor and first floor landings, and also the twenty principal stained glass windows in the peristyle of dome. In these latter windows are representations of the signs of the Zodiac, divided at intervals with the bell and ship emblematic of Belfast. Each design is enclosed in a laurel



wreath fastened with ribbons to form a medallion, as shown in our illustrations of the ship and the bell. From each medallion is suspended a cartouche, with descriptive names, and the quotation, "Nisi dominus aedificaverit domum in vanum laboraverunt qui aedificant eam" (unless the Lord has built the house in vain have they laboured who build it), the whole set off upon a background of rectangular panes. The complete design is shown in our illustrations of the bell and ship medallions. The sketches of signs of the zodiac portray four of the central designs, which are surrounded by laurel wreaths in the Zodiac series. The quality of the glass used is admirable, including sparkling antiques, brilliant Flemish, and soft cathedral glasses, all of which were specially manufactured to the order of Messrs. Campbell. The treatment of these stained glass windows is worthy of the reputation of the firm. Every detail bears the closest inspection, and the colouring of the medallions is particularly rich and pure. The colours are well harmonised, and form a pleasing contrast with the soft tones of the background. The lights are fixed in wrought iron sashes, pointed with mastic cement, and permanency is ensured by specially strong leading. The designs were furnished by the architect, Sir Bramwell Thomas.

The death is announced of Mr. J. Smith, County Surveyor for the East Riding of the County of Galway, at his residence, Ardcarne, Ballinasloe. Mr. Smith contracted a cold, which rapidly developed into pneumonia, and he succumbed after four days' illness.

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CONTENTS.

PAGE.

Topical Touches	121
A New Form of General Conditions of Contract	122
Modern Staircase Construction	126
Belfast New City Hall	129

LEADING ARTICLE.

A Complaint	130
-------------	-----

COMMENTS.

Sanitary Engineering	133
The State of Our Country towns	133
To Artists of Distinction—The Race of Architects, who only Work for Glory, and whom no Law Protects	134
A.A.I. Jottings	134
Building News	136
Royal Institute of the Architects of Ireland	138
Engineering Items	141
Engineering News	142
Correspondence	142
Answers to Correspondents	142
Smaller Cities and Towns	145
Law Cases	149

A COMPLAINT.

From time to time during the past eight years, since which the old IRISH BUILDER has been under new management, we have received many kind expressions of opinion on the improvement and added interest that our readers were pleased to say had been noticeable. Occasionally we have had complaints that we leaned too much to one side or the other, or that we failed adequately to deal with some particular subject; such, however, have been but a small minority; nevertheless, we have always given them sympathetic consideration, and endeavoured to profit by the suggestions thrown out (if any), always, of course, provided there were "suggestions." We have just received such a complaint from a well-known contractor, whom we know to be a regular subscriber, and we cannot lightly pass his complaint. In his letter he says :—

"Just in passing, we might refer to the contents of the ———, and draw a comparison with the IRISH BUILDER. We observe that the ——— is not entirely devoted to Architectural Societies and subjects of interest solely to Architects, as the IRISH BUILDER every fortnight appears to be. Take any IRISH BUILDER of recent date, for example, and we think that it is no exaggeration to say that three-fourths of the entire paper is devoted to Architectural Societies. The whole tone of the paper is entirely antagonistic to Builders' interests."

Our correspondent compares us with a certain old-established London contemporary—to our disadvantage—but then, as Mrs. Partington once observed, "comparisons are odorous." We have now been close

on a half century in existence, and hope to soon celebrate our jubilee, and, in the main, during that long period we have received the help and support of our readers, and never more so than during the past half-dozen years. Nevertheless, we are neither too old nor too proud to learn, and we shall be only too grateful for any suggestion tending to improvement, or to broadening the basis of interest of this journal. May we, however, remark that occasionally the interests of architects, engineers, and contractors conflict. For example, sometimes architects complain that men bred wholly as engineers—say such avocations as railroad engineers, road surveyors, and even county surveyors—engage in practice in purely architectural work. Here, surely is a plain issue—one cannot pull both ways thereon. Again, the builders lately had a difference of opinion as regards the new conditions of contract with the architects; similarly there is an equally plain issue—we may not take both sides. We have throughout tried to steer as even a keel as possible, but, obviously, one cannot please all parties. As to County Surveyors, when their salaries were unfairly cut down we fought tooth and nail against the proposal. We equally fought against their efforts to secure private architectural practice. In the case of architects, we have championed the cause of Registration; while as to the builders, in the sole case of any serious difference with the architects, the question of the new conditions of contract, we took the side of the Builders' Association rather than that of the Institute. As to devoting too much attention to the affairs of Architects, not three years ago one of our oldest subscribers threatened to withdraw his subscription because of our not devoting sufficient space to the affairs of the Institute of Architects; while as to Engineering matters, issue after issue our columns fairly bristled with reviews or treatises on "reinforced concrete," or "sewage disposal," until we feared our readers were nauseated.

We are pleased to receive our correspondent's criticism, and the only portion we really take exception to is his saying that the whole tone of the paper "is antagonistic to Builders' interests."

As to the space devoted to Architecture (with which, we presume, we may include matters chiefly of interest to practising Engineers), may we say that, so far as Builders' affairs are concerned, their exposition is limited to one society, to which is affiliated the Dublin Master Builders' Association, that they never discuss academic propositions, nor debate any matter unless it is of important trade interest, such as a difference of opinion as that with the Architects over the conditions of contract. On the other hand, in Dublin alone there are the Institution of Civil Engineers, the Royal Institute of Architects, the Engineering and Scientific Association, and the Architectural Association; while in London there are the Institution of Civil Engineers, the Society of Engineers, the Institution of Junior Engineers, the Royal Institute of British Architects, the Society of Architects, and the Architectural Association, all of which bodies meet regularly, and nearly all of whom are so good as to favour us with notes of their proceedings, to so large an extent that we are never able to publish more than a selection. Our good friends, the Dublin Builders' Association, never indulge in one tithe the amount of eloquence of other societies, for the excellent reason that they confine themselves to purely practical matters; whereas Architectural and Engineering Societies arrange lectures, papers, and debates of the most absolutely academic character, as



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well as records of everyday professional experience for the benefit of younger men. Add to this that, week in and week out, we receive from London, the United States, Canada, France, and occasionally South Africa and Germany, journals, the vast bulk of which are made up of matters dealing with the work of practising Architects and Engineers. In brief, the only thing we find unfair in our correspondent's criticism is the expression "antagonistic."

We desire to add, that if any of our contractor friends will offer a suggestion for the improvement of the paper, and the bringing of it more into touch with their ideals, we shall feel deeply grateful to them and most desirous of carrying their suggestions into effect. We, therefore, now invite suggestions.

COMMENTS.

Sanitary Engineering.*

This work, one of Longmans' Engineering Series, is one of the best that that well-known firm have as yet published. Mr. L. F. Vernon-Harcourt is known as a writer of authority on Engineering matters, and, consequently, a work coming from his pen, under the title of "Sanitary Engineering," is entitled to favourable consideration. Despite the fact that the subject of sanitary engineering has been pretty fully dealt with of late years, and that almost every author or promoter of a special system of sewage treatment has written a special treatise on the subject, it is, nevertheless, a fact that there is room for a work dealing generally and dispassionately with the matter. Mr. Vernon-Harcourt deals in the one volume, with both water supply and sanitary sewage disposal, a treatment of subject to which none can make any very serious objection. In the very earliest beginning of his preface, Mr. Vernon-Harcourt pays a remarkable compliment to the Institution of Civil Engineers, when he says that "without the aid of their proceedings, it would be impossible to treat adequately and fully any branch of Civil Engineering."

In dividing his book into two parts, Mr. Harcourt has devoted much the larger section to "Water Supply." It is somewhat questionable whether it was an advisable procedure, in one volume of moderate size, to attempt the treatment of two such important subjects, though, of course, many of the principles involved are common to both, the only objectionable result being that "Sewage Disposal," to which so much attention has been given of late years, is not reached until we come to page 287, leaving only a little over a hundred pages for the elucidation of this vast subject. Subject to this reservation, it must be said the author has done the utmost possible in the space, and, as an introduction to the subject, his work is excellent.

The subject is treated mainly in a broad and general fashion, and very free from troublesome formulæ; in fact, only such as are absolutely essential are cited. While not containing much that is strikingly new, the chief facts connected with water supply are adequately dealt with.

In the section dealing with sewage disposal, the author briefly summarises the various systems which have been in vogue, and, properly enough, does not waste much space in describing obsolete or practically obsolete systems, but points out to what a large extent bacterial processes have superseded all others; a notable feature being the number of sedimentation or precipitation tanks which everywhere, throughout the country, have been converted into scum or "septic" tanks, generally with good results. He describes some of the chief systems in vogue, but makes no mention of several others well known and having considerable merits.

Mr. Harcourt points out, on the authority of Samuel Rideal (whose work, on the bacterial treatment of sewage, we purpose dealing with in our next issue), "that (referring to septic tank systems) this is the general system

which has been very extensively adopted during recent years for the bacteriological purification of sewage, and with such satisfactory results in several instances, that the subsequent treatment of the effluent on land actually produces deterioration of a good effluent, instead of its further purification."

The important Manchester Sewage Disposal Works is capable of dealing with 126 million gallons per 24 hours, and the arrangement of which formed the subject of so much experiment some time ago. Our readers will remember, we recently gave a detailed description of the important Birmingham works.

Generally speaking, although not exhaustive in matters of detail, Mr. Harcourt's work should form an excellent text-book for students and others desirous of becoming acquainted with the principles of water supply and sewage disposal, and to such we can cordially recommend it.

The State of Our Country Towns.

A Limerick correspondent sends us a cutting from the "Limerick Leader" being a letter addressed to that journal by a writer who signs himself "Citizen," and is on the subject of "Dangerous Houses." Our correspondent says, in reference to the subject matter of the letter, "that to put the matter right, would give work to a little army of trade and labour people." "Citizen" writes of Limerick only, but, from our own personal knowledge, we can say that what he says of that interesting old city is equally true of almost every provincial town in the South, West and Midlands; the East coast line and the greater portion of Ulster being decidedly different. Meanwhile, our correspondent observes, "Corporations are busy discussing such eminently practical subjects as, 'Ireland a Nation,' and 'Shall the King be received,' or 'shall he not.''" "Citizen" complains that the Corporation don't do their duty in relation to dangerous and decayed structures. Says he:—

Let anyone walk through a part of the Irishtown, and then along to Thomond Bridge, and what does he see? If he were a stranger it would appear to him in one place as if we had had a touch of an earthquake, in another as if we had had a recent bombardment—old fabrics dismantled and tenantless, with the very ceilings tumbled down. Here we see the nodding arch and the broken lintel rotted, and gone from very age and the rack of war. Weird and strange they look by night, when stars gleam through the loops of time, recalling all the generations that have lived there in the bygone centuries. True it is that some of them are covered with glory and history—a history that shall never fade. But, for all the City Fathers care—

Ruin, disfigurement, and danger will have to go. Long ago they should have been taken down; then quakings and rumblings were visibly audible, and required no seismographic instrument to tell the tale. And not these alone are to go, but others that are even occupied by people regardless of the danger in which they stand. They are grown accustomed to it, which makes them careless, but when a storm sweeps over the city they are aroused to feelings of terror, and how often did we hear them say, "My God, what will become of us to-night?" This system will have to leave the town as well as the country. Reform has come all over the land in this respect. Labourers have now cottages with a bit of land, in some cases for a rental of one shilling a week, and many a chance of firing as well. Every house has a little income from pigs and poultry. The man in the town has no such way, and has to depend upon a precarious day's work.

"Citizen" concludes, by saying:—

This letter only touches the most evident cases, from mere external observation only, which reveals the houses which are held together by crutch and cramp. The memorable collapse at Broad-street corner, were it not for the timely warning of the engineers, might have caused one of the most heartrending catastrophies that has ever visited the City by the Shannon.

Our correspondent remarks that the present state of affairs is quite intolerable; "waste of municipal time, while the houses tumble down."

The same complaint may be made about most Irish country towns, but hitherto one of the chief difficulties has been short leases. No sane man, whose interest course of ten, twenty, or even thirty years, be turned out his savings in rebuilding a house, that he may, in the course of ten, twenty, or even thirty years, be turned out of; and the Municipal Councils, themselves probably in

* "Sanitary Engineering, with respect to Water Supply and Sewage Disposal." By Leveson Francis Vernon-Harcourt, M.A., M.I.C.E. 287 illustrations. London: Longmans, Green and Co., 39 Paternoster Row; New York, Bombay, and Calcutta. Price 14s. net. 1907.

like situation, refrain from putting in force the law, notwithstanding that it would result in the employment of large numbers of the working-classes, now almost bereft of employment in country towns. We know many towns where the prevailing tenure is 40 years, and even with all advantages of the new Town Tenants Bill, providing compensation for disturbance, the prospects of gilt-edged investment in Irish country town house property are not alluring. Still, we hope that some results will ensue from the "Town Tenants Bill," and that landlord and tenant alike will see some advantage in combining to create new towns throughout the length and breadth of Ireland, for that is what it means.



TO ARTISTS OF DISTINCTION—THE RACE OF ARCHITECTS, WHO ONLY WORK FOR GLORY, AND WHOM NO LAW PROTECTS.

Come, listen, while I sing to you a competition grand,
Which by the District Luni-Board of Ballinasloe is planned;
Why, you saw a notice of it in the *Irish Times*, my brothers,
It came in under "Contracts"—writ—"to Architects and others."

The General Conditions sent to each are nearly plain:
The first "most meritorious" plan full fifteen pounds will gain,

And "other" is selected, by the Special Committee,
Will be appropriated for a five-pound-note, you see.

You only have to draw the plans—to cottages attached,
And write a specification for the work to be despatched.
Of rooms you give a kitchen, sitting-room, and bedrooms three;

For fowls and pigs to each a house, include a w.c.

Of materials name the good ones from our own dear native land:

To the frontage of three hundred yards the rood plots will expand.

The cottages will twenty be: that is no use to you;
For, even if you won the prize, you would not see them through.

One thing is most important. Be the cost of each no more
Than just ten times eleven pounds, or else your chance you floor.

Efficiency and cheapness are main points, so do not touch
This most enormous total—for they think it far too much.

When plans are all quite ready, you just make a second set,
They'll come in very handy for the L.G. Board, you bet,
And send them ere March reaches past the seventh day,
For the "Joint Committee's" judgment, and they'll have their "final" say.

The clause that's somewhat difficult to me to comprehend
Is not meant for the least of them, and comes in near the end;

It deals of "lowest tender" which they need not really take,
I suppose it is a habit, and for safety its sake.

Do not be bracken-hearted if no word from them you hear,
Or the fact of who's the winner, for the sixth part of a year,
For the King his noble Viceroy his approval must attach
To the excellent design they have chosen from the batch.

The A.A.I. will visit the built cottages, no doubt,
Each member will examine them, and with an open mouth.
The lesson will be given then of how to do such work
"Consistent with efficiency," conditions not to burke;
And after that we all may plan a mansion and its bounds,
Omitting but the painting, say, for just five hundred pounds.

Note.—The author is not usually taken this way, but was inspired for the occasion; so poets will be generous and forgiving. Should anyone question the verse, the answer may be given that the gas being supplied free, a meter, dry or otherwise, is superfluous.



Helliwell and Co., Ltd., of Brighouse, Yorkshire, and 11 Victoria Street, Westminster, London, have received the contract for the patent roof glazing on their "Perfection" system at Messrs. Humber's new works, Coventry. They have also received further contracts from Messrs. Vickers, Sons and Maxim, Ltd., of Barrow; also contracts for the Wilkinson Sword Factory, Acton; Messrs. J. Rhodes and Sons, Ltd., engineers, of Wakefield; National Bank, London; Components, Ltd., Birmingham; Palm House, Williamson Park, Lancaster, etc.



A.A.I. JOTTINGS.

It is proposed to hold an exhibition of sketches, drawings, and photographs in the Association Rooms during the month of March. All members wishing to assist should forward their artistic contributions to the Hanging Committee, A.A.I., South Frederick Lane, before March 12th.

* * * *

Mr. Lynes' paper on "Water-Colour Sketching," read at the general meeting on February 5th, deserved a better attendance. Many tips of utmost value to the amateur artist were given by the lecturer, who exhibited, in a measure, the scope of his own powers by a few rapid crayon sketches to illustrate his meaning. The walls of the lecture hall were hung with sketches by Mr. Lynes, Mr. Dickenson, and other members facile of brush and pencil. A slight hesitation on the part of the lecturer in describing angles of refraction and reflection only added to the interest and enjoyment of the evening.

* * * *

The Design Club has undoubtedly gained strength through the temporary abolition of some of the junior classes. There was quite a respectable number of members present at the last meeting, when Mr. Allberry read a paper, which he described as without either point or title. His remarks consisted chiefly of a plea for a more considerate treatment of the honest contractor by the architect, and a more rigorous exclusion of the black sheep of the trade from the list of tenders. Some instances of petty, yet flagrant, dishonesty were advanced to indicate how the less conscientious members of the building fraternity endeavoured to recoup themselves for the losses occasioned by a "cut price." A long and interesting discussion followed. Mr. Craig read a paper on "Some Experiences of a Clerk of Works," on Friday, 22nd inst.

* * * *

A visit was paid on Wednesday, 13th inst., to Messrs. Hely's new factory in Dame Lane, under the guidance of Mr. F. G. Hicks. About eight members were present, and expressed themselves as very happy in having had the opportunity of seeing this example of the Hennebique method of warehouse construction in reinforced concrete. The building is very simple in character, but most interesting as showing the possibilities of concrete and steel. Mr. Wm. Beckett (who was present on the occasion of the visit) was the general contractor for the work, and the Hennebique constructional work was executed by Messrs. Thompsons, the licensees.

"WEE MACGREGOR."



ARCHITECTURAL ASSOCIATION OF IRELAND.

An ordinary general meeting of above body was held at 15 South Frederick Street on Tuesday, February 19th, Mr. J. Holloway, M.R.I.A.A., in the chair. The minutes of the previous meeting having been read and signed, Mr. C. H. Ashworth, F.R.I.B.A., read an interesting and instructive paper on "Some Aspects of the Housing Question." Mr. Ashworth, who is architect to the Dublin Artizans' Dwellings Company, has had much experience in the design and erection of houses for the working classes, and his address was illustrated by numerous plans, sections, and views of dwellings erected in Dublin and suburbs, and also at Port Sunlight. The vote of thanks proposed by Mr. W. M. Mitchell, F.R.I.B.A., President of the Royal Institute of Architects, Ireland, and seconded by Mr. Harry Allberry, A.R.I.B.A., was carried by acclamation. We hope to reproduce the paper in our next issue.



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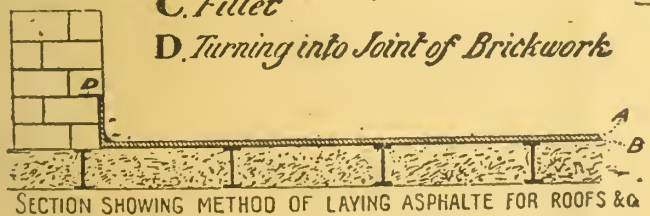
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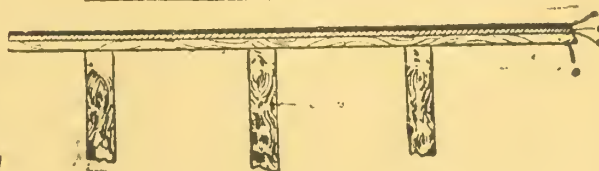
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Ballybay.—The building of the new Catholic Hall, which it has been decided to erect, will shortly be commenced. The work is expected to be completed early in the summer.

Belfast.—Permission has been given to the congregation of Oldpark to lease a piece of ground with the view to build a manse thereon.

Bailieboro'.—**ARCHITECTS' FEES FOR LABOURERS' COTTAGES.**—The question of architects' fees in connection with the erection of a large number of labourers' cottages in the Bailieboro' (Co. Cavan) Rural District form the subject of some discussion at the last meeting of the latter Council. A committee of the Council reported that they had taken into consideration the fees to be paid to Mr. Daniel, architect, and recommended that he would be paid 3/- per cottage yearly for two visits per year, and inspecting whatever works might be required in carrying out repairs; in regard to the new scheme, they recommended that he would be paid 10s. for marking site and 2 per cent. on contract, no extras to be allowed. Mr. M'Kenna moved that the figure be reduced from $2\frac{1}{2}$ to $1\frac{3}{4}$ per cent. on the contract price, and that the rest of the report be approved of. Mr. M'Intyre withdrew his motion and seconded Mr. Philip Clarke, who moved as an amendment that £2 be allowed for each house and £1 for marking the plots. The Chairman said it would be about the same as the other if not larger. Mr. Patrick O'Reilly then moved as a further amendment that the percentage for architects' fees should be $1\frac{1}{2}$ per cent. Mr. Philip Clarke seconded. Mr. M'Kenna said he had no objection if Mr. Daniel (the architect) was satisfied, and the amendment was agreed to as an original motion.

Cootehill.—At a meeting of the No. 2 Rural District Council (Co. Monaghan), a letter was read from Mr. Kellaghan, C.E., Castleblayney, asking the Council to appoint him as their architect for the forthcoming labourers' scheme, and it was decided by a unanimous vote to re-appoint him.

Clones.—At the monthly meeting of Clones Urban Council, Mr. F. W. Barry having resigned the position of town surveyor, Mr. James Kelly, contractor, Clones, was appointed temporary surveyor, salary to be at the rate of £3 a month. On the motion of Mr. Knight, seconded by Mr. Gordon, it was resolved that advertisements be issued for a competent man for the position of town surveyor.

Clogher.—The Council of the above Rural District, will, to-day, 23rd inst., receive proposals from persons competent under Rule 50 (1) of the Labourers (Ireland) Order, 1906, to act as architect, engineer, or surveyor under the Labourers (Ireland) Acts.

Carrickmacross.—**KEEN COMPETITION AMONGST ARCHITECTS.**—The principal business at the meeting of the Carrickmacross Rural District Council on Thursday was that of considering applications for the position of architect to carry out the work of the new scheme of labourers' cottages. The following applications were received:—Mr. Patrick Cahill, C.E., Dundalk, $2\frac{1}{2}$ per cent. on all cottages built and $1\frac{1}{4}$ per cent. on those rejected; Mr. Peter Tuite, Dundalk, £2 12s. 6d. per cent. on all cottages built; Mr. Hobson, Belfast, £3 15s. per cottage built, and £1 15s. rejected; Mr. Wilson, Belfast, £4 per cottage built and £1 on cottages rejected; Mr. Brennan, 5 per cent. on all cottages erected; Mr. Heeney, Silverbridge, £3 per cottage, and 6/- for marking out plots; Mr. P. Duffy, Carrickmacross, $1\frac{1}{4}$ per cent. on all cottages built and 7/6 for marking on Ordnance map. The Clerk said for the last scheme each cottage averaged £198 in cost. Mr. Duffy was declared elected, and Mr. L. Kelly handed in a notice of objection against him on the ground that he did not produce any testimonials. The Chairman (Mr. Peter M'Cabe, J.P.), said that Mr. Duffy did send in testimonials, and read one from Messrs. Hague and M'Namara, architects, Dawson-street, Dublin.

Donegal.—The Donegal Rural District Council will, to-day, 23rd inst., appoint an architect to carry out a scheme under the Labourers (Ireland) Act, 1906.

Drogheda.—The Corporation have decided to apply to the Local Government Board for a sanction of £15,000 for the building of artisans' houses. Dr. Flynn also mentioned to them that there were three prizes—£50, £30, and £20—for the best artisan and labourer's house in the Kingdom. It would be desirable for the Council to apply and get the plans and let them be submitted. They should show the people that they meant business. (Hear, hear). Alderman Keely said the Local Government Board would give plans to the Borough Surveyor. The Town Clerk said the L.G.B. would allow them to make a copy of the plans. The Town Clerk was given the necessary instructions to apply for the Local Government Board's sanction for a loan of £15,000.

Dublin (Pembroke).—The Public Health Committee have appointed Mr. Edwin Bradbury as architect for the proposed artisans' dwellings schemes and underground conveniences at a fee of $2\frac{1}{2}$ per cent., to cover all expenses.

Dublin.—Messrs. Arnott and Co., Ltd., of Henry-street, Dublin, having felt the need of extending their furniture warerooms, are incorporating the premises Nos. 9 and 10 Henry-street, and which, to make them suitable, have to a large extent to be rebuilt. The frontage in Henry-street, as far as the ground and first floors are concerned, will, when completed, correspond with the company's present premises, and will give a direct entrance to the cabinet and furnishing departments. The buildings are entirely of fireproof constructions, concrete and expanded steel being used in all floors and staircases, and the floors laid with wood blocks. Mr. George C. Beater, C.E., M.R.I.A.I., is the architect for the works, which are being carried out under his superintendence by Messrs. J. and P. Good, Ltd., contractors, 55 Great Brunswick-street, Dublin.

Several improvements are about to be carried out in the Wicklow Hotel, according to the plans and specifications of Mr. Geo. L. O'Connor, C.E., M.R.I.A.I. The contract for above work has been secured by Messrs. Rome and Co.

Tenders will shortly be invited for additions to the Public Library, Charleville Mall, according to the designs of Mr. C. J. McCarthy, City Architect. Mr. J. Mackey, Dame-street, Dublin, is the quantity surveyor.

Considerable alterations and additions are being made to the premises of Messrs. Booth Bros., 63 and 67 Upper Stephen-street. The plans and specifications have been prepared by Mr. G. F. Beckett. Messrs. J. and P. Good, Ltd., Brunswick-street, are the general contractors, while Messrs. J. and C. McGloughlin, Ltd., are responsible for the iron work. The plumbing and sanitary work is being carried out by Mr. G. F. Dunne, 84 Camden-street, Lower.

New licensed premises are in course of erection at 146 Drumcondra-road for Mr. D. Ryan. The plans and specifications have been prepared by Mr. George L. O'Connor. Messrs. W. Conolly and Son, Upper Dominick-street, are the contractors.

The District Council of the North Dublin Union invite tenders for building and completely finishing fourteen labourers' dwellings, viz., 11 in Blackhorse-lane and 3 in Baldoyle. Tenders close 10 a.m. Wednesday, March 6th.

The Dublin United Tramways Co., Ltd., are about to extend their shed accommodation for cars at Blackrock, as they intend to have only their longest and most powerful cars running on that line during the Exhibition. They also purpose extending their shed accommodation at Drumcondra and Lansdowne-road.

Tenders are invited for additions and improvements to Nos. 38 and 46 Morehampton Road, for C. E. Kennedy, Esq., and James O'Connor, Esq., B.L., respectively. Mr. G. L. O'Connor, 198 Great Brunswick-street, is the architect.

Downpatrick.—The Town Commission having secured a free site for the proposed new library from the trustees of the Saul estate, have applied to Mr. Carnegie for the grant of £2,000 promised by him towards the project.

Killala.—The Council of above District will, to-day, 23rd February, proceed to appoint a competent person to act as engineer, architect, or surveyor under the Labourers Acts for the purposes of any improvement scheme which the Council may frame.

Kells.—At a meeting of the Kells Urban Council, the following letter from Mr. R. Barnes, C.E., was read:—Gentlemen,—In accordance with your instructions, I have prepared and enclose herewith plans, specifications, and estimates for the new Town Hall and twelve artisans' houses. In compliance with your instructions to utilise, as far as possible, the scheme already prepared by my predecessor (Mr. Nulty), I have made no changes in his plans of houses for plots Nos. 1, 7, 8, 9 and 10, or specification for same, but have revised quantities and estimate, which were inaccurate. As the design is identical with those already erected in Kells by your Board under Mr. Nulty's super-

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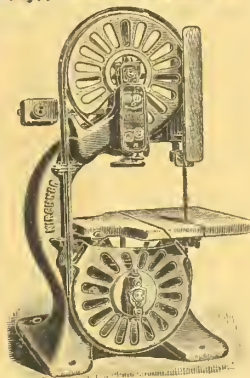
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THE MANAGER.

vision, and approved of by the Local Government Board, I assume that his plans will again meet their approval. As plot 5 was condemned by your Medical Officer of Health, and as Mr. Nulty's plan did not suit the new site selected in Carrick-street, it was necessary to prepare new plans for the latter, which I have done, and as there is a sewer in the street, I have provided for W.C. accommodation similar to that sanctioned by the Local Government Board in Navan. As regards the new Town Hall, although I should have liked to submit plans for a more imposing structure, I found the limit of expenditure imposed on me, viz., £900, debarred me from doing so. Plans submitted, however, comply with your instructions as to accommodation required, and I have made provision for construction of stores and extension of Boardroom over same, at a future date, as instructed. I estimate total cost of scheme, as per estimate enclosed, at £2,471 18s. 8d., which sum I recommend Council to apply for. The report was adopted. At the meeting of the Finance Committee the plans were formally approved, and the application for the loan was signed.

Lismore.—The Lismore Public Library Committee have arranged with Mr. George P. Sheridan, A.R.I.B.A., to prepare plans and specifications for the new Carnegie Library, Lismore, and branch libraries. The site for the buildings has been presented by the Duke of Devonshire.

Limerick.—St. Joseph's New Road. Building operations are going on briskly in this locality. Four neat houses of brick, with cut stone turnings, are about half up; while the foundations of five others are excavated, and material is lying around in abundance. The houses are being erected by Mr. Patrick Kennedy, builder, of this city.

Lunatic Asylum.—Dr. O'Neill, in his report to the Management Committee of the Limerick District Lunatic Asylum, said that the institution is in an overcrowded condition, and steps would have to be taken to provide additional accommodation.

A Housing Scheme.—A notice of motion by Ald. Joyce, M.P., which proposed to consider a scheme for the erection of residences on the Asylum's grounds for the married attendants of the institution, was discussed at Monday's meeting, 13th inst. The Asylum Board approved of the project, and appointed a committee to consider the matter.

Monaghan.—Quarrying operations in connection with the building of the boundary wall around the new structure or wing at the Monaghan and Cavan Asylum have been in full swing for the past few weeks at Skinnagin, near Donagh, Monaghan. The contractor, Mr. Henry M'Geough, Old Cross-square, Monaghan, expects to be able to commence building operations within the next few days. It is expected the work will be completed this year. The amount of the contract for the above work was close on £750.

Naas.—The Naas Mortuary Chapel Executive Committee invite tenders for the erection of a mortuary chapel at the new cemetery Naas, in accordance with plans and specifications prepared by Messrs. A. Scott and Son, architects, 34 Lower Sackville-street, Dublin. Tenders to be lodged on 2nd March.

Portumna.—The District Council considered tenders from engineers to carry out the new cottage scheme, and the following were received:—Mr. Smith tendered as follows—to make all maps, plans, and specifications for the works required in erecting the cottages, to superintend all works at £3 per cottage, and for all that may be rejected at inquiry, to do work to that stage at 10s. per plot. Mr. Roseingrave tendered at 7s. 6d. for visiting any proposed site, marking same on 6-inch Ordnance map. (2) At the rate of 2½ per cent. on cost of works executed in accordance with contracts for the execution of the works, the Council to supply maps provided by the Act of 1906. Mr. Lowry tendered to mark all plots at 2s. 6d.; attending inquiry and marking sites on maps, 7s. 6d.; and for each cottage erected, 45s. Mr. Smith was appointed.

Ramilton.—New Presbyterian Church.—The building is of the following exterior dimensions.—Length, 112 feet; width, 51 feet; width across transept, 76 feet; width across frontage, 68 feet. The tower, 80 feet in height, is surmounted by a spire of 50 feet. The interior length of the main building is 87 feet, and here seating accommodation for 782 people is provided. A gallery over the vestibule provides seats for an additional 150.

Virginia.—A fine triple light stained glass window has just been erected in the parish church, Virginia, Co. Cavan, in memory of the late William Jennings, Esq., and the value of the work is greatly enhanced by the fact of it being of Irish production. The centre opening depicts the figure of Our Lord rising from the Tomb. The draperies are all in white glasses with a delicate diaper of gold, and the figure at once commands attention by the reverential, yet majestic, position and the character of the features. In the foreground are shown the cloak, spear, and shield of

the Roman soldiers who were guarding the Tomb. The subject portion rests upon a base of foliated ornament bearing a scroll, with the text, "I am the Resurrection and the Life," and is surmounted by a canopy of similar treatment. The two side windows are ornamental, having in the centre panels of the vine, with twisted scrolls, and the texts, "I am the Light of the World" and "I am the Good Shepherd. In the upper and lower portions are smaller panels with the emblems of the dove, pelican, crown, and lamb. At the extreme bottom of the centre opening the dedicatory inscription is placed, as follows:—"To the Glory of God and in loving memory of William Jennings, born 5th November, 1828; died 7th September, 1906." Taken as a whole, the work is treated in a most artistic manner, the balance of colour and ornament being well thought out, no part obtruding on one's mind as being out of sympathy with the other. The artists are Messrs. Campbell Brothers, Franklin-street, Belfast, who are again to be congratulated on the successful completion of this commission.

Whitehead.—Plans will be received for new church. Particulars can be had on application to Rev. J. Hamilton Bennett, Kilroot House, Eden S.O., County Antrim, or to Mr. George Vance, Whitehead.

Waterford.—EXTRAORDINARY PROCEEDINGS.—The No. 2 Rural District Council considered tenders, pursuant to advertisement, with reference to the appointment of engineer for the new scheme of cottages. Two tenders were before the meeting, one from Mr. Bowers, Assistant County Surveyor, Kilkenny, and one from Mr. John A. Ryan, C.E. The former tendered at 2½ per cent. on the total cost of erection. Mr. Ryan's tender was 1½ per cent. on the cost of erection and 5s. per plot for marking sites, etc. The Clerk informed the Board that Mr. Ryan's was the lowest tender, and his qualifications were in accordance with the requirements of the Local Government Board. The Council, after considerable discussion, decided on calling Mr. Bowers into the Boardroom, when he was asked to amend his tender according to Mr. Ryan's charges, and he having consented to do so, was appointed to the position. Several strong comments on the irregularity of the proceedings were made by members present, as the work was advertised for publicly, in answer to which the candidates put in their applications. The Council contemplate spending £30,000 on the proposed scheme.

ARCHITECTS UNDER THE LABOURERS' ACT.

The following Rural and District Councils have advertised for architects under the Labourers' Act, 1906, the date of application being given in brackets:—Clonmel No. 2 Rural Council (Feb. 23); Oughterard (Feb. 28); Killarney (Feb. 23rd); Sligo (23rd Feb.); Clogher (Feb. 23rd). The following Councils have appointed the gentlemen named:—Strokestown, Mr. Hanly; Lismore, Mr. A. W. O'Riordan; Milford, Mr. P. Dawson; Bawnboy, Mr. T. O'Brien, Stradone.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A special meeting of the Council was held at 20 Lincoln Place, Dublin, on the 18th inst. The President occupied the chair. There were also present—C. A. Owen, A. E. Murray, C. H. Ashworth, H. Allberry, F. Batchelor, G. P. Sheridan, R. C. Orpen, G. C. Ashlin, F. G. Hicks (Hon. Treas.), and James H. Webb (Hon. Sec.).

A recommendation from the Professional Practice Committee with reference to asking the Local Government Board to receive a deputation from the Council, was before the meeting. The Committee was asked to prepare a statement of the facts.

The other business before the meeting was of a confidential nature.

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ENGINEERING SECTION.

ITEMS.

Opposition to the forthcoming Architects Registration Bill is arising in most unexpected quarters. Various Urban and Rural District Councils have decided to oppose the second reading on the grounds, that the provisions appear to be disadvantageous to local authorities. It has also been stated that the Institution of Civil Engineers will be found in the ranks of those adverse to the measure. Certainly it would require very clever draftsmanship to define the duties of an architect from those of an engineer, and unless such definition be clear and distinct, the Bill would practically be a dead letter.

* * * *

In an article which recently appeared in our columns, a suggestion was made that labourers' cottages could be erected hygienically and economically of mud. It is interesting to note, in this connection, that during the demolition of Duckworth Hall Farm, Lower Walton, it was discovered that the building, with the exception of the outer walls, was entirely constructed without stone, brick, or mortar. Oaken staves laid across timber girders, and puddled with clay and chopped straw, formed the floors and ceilings, the walls being of similar formation, but held together by willow staves. It is a well-known fact that many large houses in the West of Ireland have their internal walls formed of turf, the chief disadvantage being that, with age, the room gradually loses its rectangular form, the numerous curves and bulges which ensue being somewhat disturbing to the architectural critic.

* * * *

Mr. A. Gladwell, engineer to the Eton Rural District Council, has issued a specification of an improved method of road-making, which his experience has proved to be effective. The chief consideration is the adoption of a matrix or flux formed of tarred slag or macadam, made of fine screenings, evenly spread over the surface to be made up, to a thickness of about $\frac{3}{8}$ inch. Upon this should be spread a layer of broken granite or other material suitable to the traffic requirements of the locality. This layer should be composed of square, hard stones, free from dust or flakes, broken to a 2-inch gauge, and two stones in thickness. Immediately after the spreading of this coat, it should be thoroughly rolled into the matrix with, at least, a ten ton roller, first passed slowly over the surface, and continued until the matrix works through. No watering carts or sweepers are required, and no sand or other binding material should be employed. It is claimed that a road of this character has a much longer life than that prepared under the old macadam system.

* * * *

The very serious difficulty that arose between the authorities of Greenwich Observatory and the London County Council, over the new generating station erected by the latter body, appears to be on a fair way towards settlement by compromise. It will be remembered that some months ago allegations were made that the new plant interfered seriously with astronomical work at the Observatory, and Lord Rosse, Prof. Ewing, and Sir Benjamin Baker, representing respectively the Royal Observatory, the Admiralty, and the London County Council, were invited to report on the matter. The result of their inspections and conferences has just been issued, and a recommendation is made that the second portion of the generating station shall be installed with turbine engines and dynamos of a perfectly balanced type, in order that vibration may be obviated and that the two new chimney shafts shall be not over 204 feet in height, instead of 272 feet, as at present. The gases from the new and existing shafts shall not exceed 250 degrees Fahr., and no addition shall be made to the station beyond the 20,000 Kilowatt plant now proposed. It is further suggested that when the additional turbo-generators are installed, the existing engines shall not run after 10 p.m. Altogether, it can readily be observed that the report only

aims at minimising a recognised evil, and, while clearly substantiating the complaints made by the Observatory authorities, it further indicates that the London County Council were not well advised in installing reciprocating engines in a modern plant of this size and description. The fact that an absolutely adverse report would have occasioned a huge sacrifice of public money, probably weighed heavily in the minds of the advisory experts, but even as it stands, the report is not calculated to assist the Progressive majority on the Council in the forthcoming March elections.

* * * *

Mr. W. J. R. Baker, Gas Engineer for the Borough of Malvern, recently delivered an interesting lecture on the "History, Manufacture, and Uses of Coal Gas." His remarks on the mantle were particularly instructive, as they included some useful hints in connection with Welsbach's great discovery. It is desirable before fitting the mantle that the flame from the burner should be non-luminous. If any part of it gives a white light, it is an indication that too little air or too much gas is present. The obvious remedy is to increase the gas, or decrease the admission of air, until a proper Bunsen flame is obtained. The outer part of this flame is the hottest, and heats the mantle. It is frequently observed that less light is obtained when the gas is full on than when it is slightly turned off. This is due to the fact that when the gas is reduced the Bunsen flame cone more perfectly coincides with the surface of the mantle. As it may interest our readers, we give Mr. Baker's detailed explanation of the proper method of fixing a mantle, an operation which is frequently attended with damage, and consequent loss of money and temper. First, take off the head of the burner; secondly, fix the fork or rod; thirdly, hold the mantle in the palm of the left hand, pass the mantle gently over the burner head until the fork catches the loop, taking care that the mantle is not pierced; fourthly, put the chimney on *before* burning off the mantle; fifthly, replace the burner head on the Bunsen tube, and then, before turning on the gas, light the mantle from the bottom and burn off the toughening substance; lastly, turn the gas half on, and hold a light over the chimney until the gas ignites. The mantle should never be taken by the head where the asbestos support is.

* * * *

A Bill, that will possibly have considerable effect on Ireland, will be laid before Parliament at an early opportunity. We refer to the Collooney, Ballina, and Belmullet Railway Bill. The scheme, for which sanction will be sought, is intended to connect the Midland and Great Western, Sligo and Leitrim, and Great Northern of Ireland Railway with Blacksod Bay by a line some 100 miles long from Collooney, near Sligo, to Termon. This line will, we understand, be a double gauge, to admit the passage of English trains, which will be ferried across the Channel. The scheme is only a small part of the work necessary to form a new and rapid Anglo-Canadian route, by which it is anticipated that Montreal will be brought within five days of London, a reduction of over one-third the time necessary to make the journey at present. The other main features of the undertaking are the establishment of a 25 knot steam service between Blacksod Bay and Halifax, and the establishment of train ferries between Ireland and a Scotch or English port. Not only would this rapid service be directly advantageous to our Colony, but it would bring Chicago and many other North American business centres in much closer touch with this country; the new line would, therefore, tap, to a large extent, the emigrant traffic from Europe to the United States. Further, as the Pacific coast could be reached in nine days, it would be possible, with accelerated service, to deliver the mails in Japan in seventeen days, but little longer than it takes at present to reach the Cape. It will, therefore, be seen that the project has very great possibilities, and while we may anticipate much delay in the preliminary negotiations, yet, it may confidently be anticipated that the scheme will not be allowed to drop, supported as it is by Canadian public opinion.

ENGINEERING NEWS.

Blackrock.—A new destructor is about to be erected in Blackrock. A site has been purchased for £200.

Messrs. Hughes and Lancaster have secured the contract for equipping the district with the Shone ejector. The cost will be £4,000. The local contractor for the work is Mr. Frazer, Bray.

Clare.—The Kilrush Rural District Council invite tenders for the construction of an impounding reservoir, having two earthen embankments, by-wash, and storm overflow channels, cast-iron supply and service mains, with valves, hydrants, and all other appurtenant works necessary for completion of scheme for water supply to town of Kilkee. Tenders close 15th March, 1907.

Clare Asylum Board.—At Monday's meeting of the Ennis District Lunatic Asylum, Mr. Frank O'Connor, C.E., wrote stating that it was quite evident that the County Council did not intend to apply for the necessary loan to have the Asylum extended in accordance with the plans, etc., prepared by him, which received the statutory sanction and approval of the Lord Lieutenant about two and a-half years ago. He, therefore, had to apply for payment for those plans. Not wishing to have any difference with the Asylum Board, who always treated him in a courteous manner, he was willing to have the whole question as to proper remuneration submitted to any competent architect, or even to a gentleman who drew up the conditions—viz., the Consulting Architect of the Inspectors of Lunatics, with whom he had but a very slight acquaintance. If they did not agree to this proposition, which he considered a very fair one, there was no alternative but to have the question decided in another way, however objectionable. The Board decided on a settlement with Mr. O'Connor, but as the matter assumed a complicated aspect, it was referred to Mr. Kerin.

Castleblayney.—THE WATERWORKS CONTRACT.—A very heated discussion took place in connection with the Castleblayney waterworks and sewerage contract at the monthly meeting of the Urban Council, in that town. A petition signed by fifty-four ratepayers, which had been forwarded to the Local Government Board, was read. This was to the effect that the tender of Messrs. Fleming Bros. was £660 16s. 11d. lower than the accepted tender of Mr. John Callan; that the accepted tender was £643 13s. 2d. higher than that of Fleming Bros. in respect of sewerage works; that the Council was now divided as follows, viz., 5 for and 4 against the accepted tender; that such a small majority was no justification for saddling the ratepayers with the enormous sum of £660 16s. 11d., plus interest for 30 years on this sum at 3½ per cent. plus additional percentage, etc., or over £1,000 on a small struggling community; that it is not the prayer of the petitioners to give the contract to Fleming Bros., or to any one man in particular; and that the contracts should be re-advertised and a lower tender accepted. A long and animated discussion took place, in the course of which the Chairman said the petition was a discredit to the town, and its authors should be ashamed of themselves. The Chairman suggested that they should send a reply to the petition to the Local Government Board, which was to the effect that six out of the nine tenders received were in excess of Mr. Callan's; that Fleming Bros.' tender was so wide of the engineer's (Mr. F. Bergin) estimate, by which they were guided in the matter, that after careful consideration they decided not to treat this tender seriously, and to give the contract to the contractors whose tender was consistent and cheapness approached nearer to their engineer's estimate; that Mr. Callan had carried out a waterworks scheme in Ballybay last year very satisfactorily; that many of the petitioners were not ratepayers at all; and, even if they were all *bona fide* ratepayers, they only represented £455 5s. out of a total valuation of £4,100. Mr. Lupane handed in a notice of motion that the Local Government Board be asked to hold a sworn inquiry into the whole question. Mr. Daly proposed that the chairman do not accept the motion unless Mr. Lupane undertook to pay the costs of the inquiry. Mr. Farrell said they had too many inquiries. The Chairman refused to accept the motion, and the proceedings, which were pretty lively at times, then terminated.

Dublin.—The Port and Docks Board are open to receive tenders to 10th March for a boiler for their steam tug *Majestic*, according to specification of Mr. John P. Griffith, M.Inst.C.E., East Wall, Dublin.

The Corporation are prepared to receive tenders for the supply of mantles and 6-in. Jena chimneys for street lighting to 31st March, 1908. Tenders close 28th inst. They also invite tenders for the installation of a steam turbine alternating current generating set of a capacity of either 1,500 or 1,000 K.W., according as selected, at their Pigeon House generating station. Tenders close 28th inst.

CORRESPONDENCE.

DUBLIN CORPORATION TECHNICAL SCHOOLS.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

Sir,—In your current issue, in commenting on the fact that the City Architect has been entrusted with the designing of the new Technical Schools, you assert that this action would not have been taken had the Institute taken more active and early steps to place the claims of the profession before the Corporation of Dublin. This criticism is, I think you will agree, unmerited, as, early in April last, our Council sent a strongly-worded protest to the Corporation, repeated the protest in the month of June, and, later, sent a deputation to lay its claims on the subject before the Corporation.—Yours, etc.,

R. CAULFIELD ORPEN.

13 South Frederick Street, Dublin,

Feb. 12, 1907.

[We gladly publish Mr Orpen's letter. We were unaware the Institute had approached the Corporation in any way prior to the attendance of the deputation on the Municipal Council of Dublin. That action must have been very quietly taken, inasmuch as it was little voiced in the public Press (if reported at all). The deputation, for which Mr. Orpen thinks the Institute should take credit, was only constituted, in rather belated fashion, after the receipt of a memorial signed by a number of private members of the Institute, and may be said to have been undertaken at the twelfth hour, at a time when the plans had actually been prepared by the City Architect. That a deputation was organised at all was solely due to the energy of Mr. William Scott, A.R.I.B.A., who interviewed several of his friends in the profession. Had it been undertaken earlier, the result might have been different.—ED. I.B. & E.]

The Prevention of Corruption Act.—Mr. John Roberts' Article.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—I have read with considerable amusement the long effusion of your correspondent, "Manufacturer," in your last issue. "Manufacturer" is evidently neither a lawyer nor a close observer of affairs relating to building. He accuses Mr. Johnson-Roberts of what he calls "begging the question," whereas it is "Manufacturer" himself who "begs the question." He would be a rash man who, in the absence of authoritative legal decision, would undertake to define accurately the meaning of "secret" or "corrupt" commissions as used in the new Act, but for all ordinary purposes these terms may be taken as meaning commissions accepted without the knowledge and consent of the employer—in common parlance, "behind his back." The man who signs a contract that includes a provision to supply and "provide a sum of one pound sterling, P.C." for the purchase of any particular item, and who does not expend that sum of twenty shillings to the uttermost farthing or deducts therefrom anything in the shape of discount or otherwise, is perpetrating a fraud, both morally and legally, and, in plain English, is swindling the employer.—Yours, etc.,

SUBSCRIBER.

ANSWERS TO CORRESPONDENTS.

Plumbing and Heating Contracts at Monaghan Asylum.

"Phibsboro' Correspondent."—The following contracts in connection with the plumbing and heating of the Monaghan Asylum (new buildings) were declared at a meeting of the Joint Committee (Monaghan and Cavan) of the Asylum on Thursday, 13th December last:—Internal plumbing work, Messrs. W. Baird, contractor, Dublin, £940 5s.; heating cooking apparatus, and gas fitting, Messrs. Brooks, Thomas and Co., Ltd., builders' providers, Dublin, £1,860 0s. 6d.; fire mains, Messrs. E. Gallagher, Roden-place, Dundalk, £110 12s. 6d.

The Chief Engineering Inspector of the Irish Local Government Board, Mr. P. C. Cowan, B.Sc., M.I.C.E., has been appointed one of the judges of the forthcoming Roads Improvement Association's competitions for the best machine for spreading tar over existing road surfaces and the best preparation of tar for road purposes.

ARCHITECTS WANTED

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SMALLER CITIES AND TOWNS* (Architectural Practice in.)

By G. E. BOND.

The practice of architecture in our large provincial centres, such as Manchester, Liverpool, Glasgow, Leeds, and others of similar dimensions, is carried on under conditions closely allied to those existing in the metropolis. Firstly, there are to a great extent the same opportunities for specialising—one man makes a study of, and acquires a reputation for, successful church design; another one for theatres, another for hospitals, others for schools, hotels, and so on. If one takes up the Year Book published by any of the large Nonconformist bodies, showing, among other items of interest, the various churches and chapels erected during the year, it is surprising to find how often the same architect has been employed on this special work in different parts of the country. And these special practitioners, of various kinds, almost invariably have their office addresses either in London or in one of the large provincial towns. Secondly, talented and ambitious young men are attracted to these large towns, as to London, by the opportunities afforded for special supplementary training in well-equipped schools of art and science on the one hand, and on the other for gaining practical experience upon the details of large works in the course of their daily office duties; and, further, each one knows that should he be able to establish a practice and meet with a fair amount of success, such success will be more pronounced, and secure more tangible results than would be possible in a small town, because in the latter the average cost of a building is only about one-tenth of what would be spent upon a building for similar purposes in any of the large and important centres. Therefore, in considering the practice of architecture in our smaller cities and towns, I wish it to be understood that I am referring to cities and towns having a population of about sixty thousand or less.

Provincial Practice.

Here we find an architect practising under very different conditions to those obtaining in the metropolis. He cannot specialise, the difficulties to be overcome are greater, the qualifications required to ensure success are more varied (for it does not by any means follow that a successful London architect would have been equally successful in the provinces), and success, when assured, even at its best, must necessarily be upon a lower plane, both architecturally and financially.

Thirty or forty years ago all the best work in each of the cities and towns now under consideration was probably performed by one, or at the most two, architects, with a small staff of assistants. Things generally moved slowly, and pupils were comparatively few. But during this period public enterprise has been great in all directions. With moneys borrowed at a low rate of interest, with repayments extended over a period of thirty years (the municipal debts of England and Wales stand at the present moment at something over £200,000,000, and a great part of this has been spent upon building works), our local governing bodies have built town halls, municipal offices, libraries, baths, schools, and infectious diseases hospitals. Then, again, the Local Government Board insisted upon a higher standard of accommodation in our workhouses, necessitating the erection of improved buildings for the use of the sick and infirm, cottage homes for the children, and new kitchens and laundries suitable for the reception of steam-cooking and washing apparatus. The whiskey money gave a great impetus to the erection of technical institutes. The construction of electric tramways necessitated the widening of a great many old business streets, thus compelling tradesmen to rebuild their premises, and a general rise in the prosperity of the country, combined with the introduction of new and rapid means of communication, created a desire for suburban residences.

An Overcrowded Profession.

One might naturally expect that the effect of this combined public and private enterprise would have been bene-

ficial to every member of the profession, but such was not the case. Whatever may have been the effect in the large centres, it certainly was not altogether to the advantage of architects then practising in the smaller towns. The large centres of population were naturally first in the field, the high values of property, and their large areas for rating purposes, enabling them, with the assistance of the moneys borrowed on easy terms, to provide those large and costly buildings, without adding very materially to the rates. Thus began a period of prosperity for local practitioners. Parents, recognising this, desired their sons to become members of a profession with such bright prospects, and pupils flocked in, every successful man having twenty applications for one vacancy, with the inevitable result that within a period of from fifteen to twenty years, these towns were overcrowded with young ambitious men, having varying degrees of experience, but all seeking opportunities for a practical demonstration of their talents and abilities.

The Coming of "Competitions."

By this time the spirit of enterprise had filtered through to the smaller cities and towns, and necessity, or desire, led to building developments of more or less important character. But, concurrently with the growth of municipal enterprise, came a development upon doubtful lines of the system of architectural competitions, and the local men who had been looking forward to the enjoyment of a big share in the prosperity necessarily following upon the progress of their towns, had their hopes dashed to the ground by the action of unsympathetic, democratic Councils and Boards of Guardians, who insisted upon submitting all the new and important work to public competition, with the result that those old-established practitioners, who would not, or could not, adapt themselves to the new order of things, gradually dropped out of sight, and new men, full of energy and determination, trained and educated to the new conditions (and frequently they were those who had been crowded out of the nearest centre), stepped into their places, fought for, and secured, the prizes, and, as a result of those early struggles, are to-day firmly established, and able to carry on an honourable and lucrative practice.

A Great Injustice.

But even at the present time one of the chief annoyances to which an experienced and conscientious architect is subject is to find the best work in his town either thrown open to public competition or handed over to a specialist in London or the nearest provincial centre. He feels it to be a great injustice that, as a ratepayer, he should be called upon to pay an outsider for services which he, or a local confrère, could have rendered equally well, perhaps better. That knowledge of local conditions and resources, which he has acquired only as the result of a number of years' continuous observation and experience, and which would have enabled him to secure the best results at the lowest possible cost, is ignored. He knows that, as a local man, with a local reputation to maintain, he is bound to keep the cost of a building within the limits of the estimate, and this knowledge is a very heavy handicap in a public competition, whereas his rival from a distance can, and frequently does, exceed the estimate by anything from 25 to 50 per cent. The evil results of competition of this character are most acutely felt in small towns, for it is only in such towns that competitions for buildings costing very small sums are invited. These sums may be anything from £1,500 to £15,000, and are too small to attract experienced and successful men, the result being that the competitors are generally young men who have nothing else to do, who in some cases have not had sufficient experience to work out an estimate, but who are capable of presenting a set of drawings, worked up to a high state of artistic excellence, thus completely outshining in the eyes of an inexperienced council or committee the more solid productions of experienced local competitors who are not prepared to spend their time in elaborating their drawings.

A Choice of Two Evils.

No matter how unfair or unjust are the conditions, councils and committees are always able to obtain any number of competitors, so the local man must either com-

* A paper read before the Society of Architects, January 17th, 1907, by Mr. C. E. BOND, past member of Council.

pete, or, as he more frequently does, stand upon his dignity, and allow an outsider to secure the work, and he subsequently has the doubtful satisfaction of seeing the same carried out by a man lacking all sense of local responsibility, to the general dissatisfaction of the promoters, and at a cost increased to the extent of 20 or 25 per cent. by the competitor's want of local knowledge. But in this respect, conditions are not as bad as they were twenty or twenty-five years ago, when the competition craze had reached its highest, or, rather, its lowest, development. In those days in some districts it became the rule to invite competition for every small job of a public or semi-public nature—in fact, my first successful competition, twenty-seven years ago, was for re-modelling the end of a church at a cost of £130.

But country practitioners may congratulate themselves upon the fact that all councils and committees did not pursue his doubtful course. In many cases the local man, having proved his ability and trustworthiness, during a number of years upon smaller work, was given the necessary opportunity to prove his worth upon a work of importance; and seldom did he fail, because the experience gained during his years of trial enabled him to rise to the occasion, and carry out that work with credit to himself and satisfaction to all concerned. His success on this occasion placed him at once in the front rank locally, and he may go on from success to success. He has the ball at his feet, but he will still have to exercise the greatest tact and skill and strain every nerve to keep it there. He must continuously put his best into every attempt, for his position is never secure. A single failure may undo the work of years. He cannot, like a medical man, bury his failures; his works stand out boldly open to the criticism of all; by them he is judged, and they will remain monuments, either to his success or failure. It is his lot in life to be surrounded by rivals, ready to take advantage of every mistake he may make, so that throughout the remainder of his career he is compelled to labour just as hard and unceasingly to keep his place as he did when struggling to secure it.

The Keynote of Success.

Individual effort is the keynote of architectural practice, and to this may be attributed the comparative want of success attending all our attempts to initiate some effective form of combination, and I venture to suggest that while encouraging in every possible way individualism, with regard to professional and artistic ideals, we ought to strive strenuously to break down that insularity which leads us to look upon our brethren as antagonists, and causes every man to fight solely for his own hand. Let us endeavour to make the profession socially and morally a concrete whole.

But should the successful practitioner be able to maintain his position, just consider what a variety of works he may be called upon to carry through during the course of a twenty-five or thirty years' active practice in one of these small towns. He may run the whole gamut, from a town hall on the one hand, to a common lodging-house on the other, including, perhaps, a theatre or music hall, churches, chapels, technical institutes, public libraries, banks, schools, baths, fever and general hospitals, infirmaries, cottage homes and other workhouse buildings, clubs, hotels, publichouses, steam laundries, factories, warehouses, business premises of all descriptions, and residences of all dimensions and varieties, and during the third decade of that practice it may well happen that, as a consolation for the loss of the best work of his town in his earlier days, he may be then employed upon important works in various parts of his county.

A Valuable Training.

In the course of a practice such as this, the knowledge and experience gained ought to make the practitioner one of the most useful men in the district, for during his career he must necessarily have been associated with all kinds and conditions of men. He has received instructions from a bishop, and has accepted practical suggestions from the labour-master of a tramp-ward. He has met the elders and deacons in the vestry of a Nonconformist church, and has been behind the scenes in a theatre, and behind the bar in a publichouse, and tradesmen have explained to him

the routine of their various businesses. He is frequently appointed arbitrator by the Courts in building cases, is called upon to give expert evidence before judges and magistrates, he is usually the expert member of deputations to the Local Government Board, Board of Education, Charity Commissioners, and other bodies having administrative functions, and has possibly been appointed assessor in architectural competitions. He must understand the working of the Poor Law, the Licensing Law, and the bye-laws of all public bodies, and, without doubt, he is compelled by the circumstances of his position to be thoughtful, tactful, and business-like in all his undertakings.

Qualifications for Success.

Let us for a moment consider what are the necessary qualifications for successful practice in a small town. Putting aside the question of the influence of powerful friends and relatives, which is the same everywhere, I may say that after the usual artistic and practical knowledge of one's profession, business aptitude becomes a necessity, combined with a keen, practical sense of proportion.

As a rule, the business man in such a town places use before ornament. He cares far more to have his premises suitable and convenient in every respect for his particular business than he does about the style or quality of his elevation, and, as it is usually only by making a special effort that he is able to rebuild at all, he naturally desires to cut down the cost to the lowest possible point. These being normal conditions, they require serious consideration, and it is here a young architect usually makes his first mistake. With possibly a London or large town training, and having undertaken the commission, instead of devoting his energies to the task of making himself acquainted with the methods of his client's business with a view to making the plans perfect in their convenience, his thoughts are chiefly centred upon the elevation. He is far more anxious that the building shall be a monument to himself than that it shall be perfectly adapted to its purpose. Now, this is an injustice to the client, and a great error in tactics on the part of a young architect anxious to succeed.

Study a Client's Interest.

In a very varied practical experience, extending over thirty years, I have always found it the best policy to study my client's wishes, interests, and circumstances, and to carry out his instructions to the letter. With tact one can generally persuade him to allow one to suitably arrange the elevation. He may not understand the plans, but there is no excuse for the architect not understanding him. It is one's duty as expert adviser to get a thorough grasp of his ideas before committing himself to the fulfilment of a contract. I do not wish to labour this point, but I have known several instances where a client, with the intention of doing a good turn to a young fellow starting a practice, has placed a small job in his hands, only to find that he, having big ideas of how the work should be done, practically ignores the instructions he has received, with unsatisfactory results to both parties, and this is the reason why clients with little money to spend fight shy of the highly-educated young architect, and, instead, employ a builder's clerk, or one other of the many persons who are to be found in every town capable of geometrically arranging upon a paper a man's requirements, and who will treat the matter strictly as a matter of business and carefully obey instructions rather than try to earn a reputation as an artist at a client's expense.

Ideals or Common-sense.

It may be said that these idealistic young men are comparatively few in number, but, nevertheless, they are capable of causing a deal of trouble, and of inducing in the public mind a want of confidence in the business qualifications of architects generally. I remember sitting next to one of these young gentlemen at the Society's Annual Dinner, some seventeen or eighteen years ago. He was about twenty-four or twenty-five years of age, and assured me, as the result of his experience, that clients, as a rule, knew nothing about architecture; that one only had to bluff the Johnnies to get one's own way. He said he was always careful that all parts of his buildings should

be in perfect harmony, and to secure this result he had to prepare drawings for every part, down to the smallest details, even to designing his own knockers and door furniture. That young man must now be at least forty years of age, and it would be interesting to know whether he still designs knockers and door furniture.

The necessary qualifications, therefore, include the possession of a sufficient amount of common-sense to enable one to recognise the fact that it is possible for a client to understand his own wants best. To succeed, a man must be prepared to study carefully and conscientiously the requirements and routine of every class of business, and the manner in which each of the religious bodies conduct their services, before he can design either business premises or churches and chapels, perfectly adapted to their various uses, and the same may be said of every other class of building with which he may be associated.

The Coming Men.

In the whole of the preceding remarks we have been considering, to a great extent, the position and the opportunities of the successful man only, say, perhaps one man in twenty. What about the other nineteen? These are the gentlemen who would chiefly benefit by the passing of a Registration Bill, and for whom this Society has been, and is now, strenuously working. The men at the top, whether in London or in the provinces, who are effectively taking the cream, can well afford to sit still while their less successful brethren are struggling to secure a share of the skimmed-milk. Of course, among such is to be found a large percentage of mediocrity, but a large majority are capable and conscientious practitioners. Some of the younger men have great talent, and are fighting their way to recognition, and with fair opportunities, and that experience which time only can bring, will in the future take the places of the successful men of to-day. Others there are who are artists to the core, but lack method and business aptitude, and, as in all other professions, a small percentage are failures from other causes. While some are not smart enough, others have earned a reputation for being too smart; but one and all suffer from the inroads made into their opportunities of employment in the honourable profession they have adopted as a means of livelihood by a host of persons who adopt architecture, generally in its lowest form, as an auxiliary means of adding a few pounds per annum to the incomes they earn from their more legitimate callings.

The Need for Registration.

What with the large general furnishing firms, builders, shopfitters, barfitters, horticultural builders, and others, who advertise themselves as willing to send down, take measurements, and prepare plans, specifications, and estimate free of cost, on the one hand, and estate agents, auctioneers, business valuers, and commission agents, who add architecture and surveying to their other work, on the other, the profession is becoming one of the worst a young man could possibly enter, and it is small wonder to find some of our less successful brethren adding insurance agencies and rent collecting to their legitimate calling, and as a strong reaction has set in with regard to municipal expenditure, the general outlook is black, indeed.

INTERNATIONAL EXHIBITION.

Exhibition of Pictures, Drawings, and Sculpture.

The Irish Fine Art Committee of the Dublin International Exhibition intend to include a section exclusively devoted to Irish Art. The Committee are desirous that Irish artists should be represented, and have invited a number of painters, architects, etc., to contribute some of their works.

Selected works will be fully insured against every risk by the Exhibition authorities, who will pay carriage.

The Exhibition will open in May next, and close in October. The last day for reception of selected works will be March 30th, 1907. The Art Section will include pictures in oil and water-colour, works in black and white, architectural designs, etc.

LAW.

Manse for a Belfast Congregation.

In the Chancery Division, before Mr. Justice Barton, in the matter of the estate of Andrew Kirk, deceased, the Rev. C. J. McAllister and another v. Thomas Kirk and others,

Mr. Dudley White (instructed by Messrs. Harris and Greene), who appeared for the Attorney-General, said the matter came before the Court to confirm a scheme as settled by the Chief Clerk for the application of a certain bequest of the deceased, left for the purpose of erecting a manse for the minister of the Second Congregation, Rosemary-street, Belfast. The fund given by the deceased consisted of £1,449 16s. 8d. New Consols and £17 4s. 4d. cash. The congregation had actually built a manse before the money became payable under the will. This was done at great expense, and then a fund was got up by the church, and there were subscriptions made. Owing to the obligations they had incurred in putting £900 into the manse, they had to consider how they should allow this to the congregation. They, therefore, proposed in the scheme that New Consols equivalent to the sum of £950, and if sufficient to pay costs, should be transferred from the Consols to the treasurer of the congregation, of which £900 was to be devoted by him to discharge in part the debt of £1,175 cost of building the new church at Elmwood-avenue, Belfast, and the remaining £50 to be immediately paid for repair of the manse at Ulsterville-avenue.

Mr. W. H. Brown (instructed by Mr. John F. Mulligan), on behalf of the Second Congregation, said he would like the insertion of a paragraph providing that the scheme might from time to time be altered or amended as occasion might require, by an order of a judge. This would provide for the emergency of the congregation deeming the manse which now existed for the church not being in a suitable position, and wishing to get a better manse. They could then get leave to sell the old manse, and buy a new one out of the purchase money.

Mr. Justice Barton confirmed the scheme amended in the manner suggested by both counsel.

Castleblayney, Keady, and Armagh Railway Bill.

In the Court of Appeal, consisting of the Lord Chancellor, Lord Justice FitzGibbon, and Lord Justice Holmes, an appeal was opened on behalf of Robert Worthington, contractor, against the Castleblayney, Keady, and Armagh Railway Company. The applicant now asked that an order of the King's Bench Division refusing his application for a new trial of the action, or that the verdict be entered for him instead of the defendants, be set aside, and that judgment for the amount of his claim, £2,775, be entered for him, or that in the alternative, a new trial, be granted. The sum claimed was in respect of a contract between Mr. Worthington and a Mr. Joyce, C.E., whereby, amongst other matters, it was agreed that Joyce should receive certain remuneration for work done in connection with the promotion of a Bill in Parliament affecting the railway. Mr. Worthington paid this to Mr. Joyce, and sued the Company for the money as if it had been paid to their use. On this a jury found for the defendants, and the King's Bench Division held that there was no privity of contract between the plaintiff and the defendants.

Litigation Over the New Post Office in Cork.

In the King's Bench Division, before Mr. Justice Wright, in an action of John Delany v. Commissioners of Public Works,

Mr. A. M. Sullivan (instructed by Mr. Maurice Healy) applied on behalf of the plaintiff for an order of discovery of documents in the action which is brought by the plaintiff, a contractor at Cork, to recover £5,000 damages for alleged delays in the execution of the works at the new Post Office, Cork, which had been commenced so far back as June, 1903. In his statement of claim plaintiff alleged that the contract dated May 17th, 1900, for additions and alterations in the Post Office then existing, amounted to £14,947, and that as the result of wrongful prevention by the defendants, the Board of Works, he was obliged to keep in readiness a large number of men under wages during delays, without being able to give them employment.

Mr. Coll (instructed by Mr. Lane, solicitor to the Treasury) applied for a similar order on behalf of the defendants.

Mr. Justice Wright granted the application in each case

CONCRETE AGGREGATES.

The British Fire Prevention Committee have decided to inaugurate an inquiry on concrete aggregates, a subject to which special attention has been called in connection with their series of fire tests with steel and concrete and with reinforced concrete floors. The Special Commission will be formed among the members of the Committee and representatives of the public authorities subscribing to the Committee, and the scope of the enquiry is described in the following resolution:—

"That having regard to the confusion existing as to concrete aggregates, and the absence of their exact specification, the British Fire Prevention Committee do hereby constitute from among its members and subscribers a Special Commission to report upon and define the aggregates suitable for concrete floors intended to be fire resisting, having due regard to questions of strength, expansion, and the chemical constituents and changes of the aggregates."

In forming the Commission, it has been considered of importance that the various technical interests should, as far as possible, be represented.

Sir William Preece, K.C.B., F.R.S., Past Pres. Inst. C.E., late Chief Engineer, General Post Office, will act as chairman. Mr. Matt. Garbutt, F.R.I.B.A., M.Inst.C.E., will act as Hon. Secretary.

All correspondence should be addressed to the Assistant-Secretary, No. 1 Waterloo Place, Pall Mall, London, S.W.

TENDERS.

RATHDOWN RURAL DISTRICT COUNCIL, No. 1.

Tenders received on 20th inst. for building nine cottages at Rathmichael and Loughlinstown:—

No. 1—Frazer, Bray—Loughlinstown, 2 pairs, £154; do., 1 single, £157.

No. 2—Lawlor and Archer, Bray—Loughlinstown, pairs, £176; do., single, £172.

No. 3—Jas. Clarke—Loughlinstown, pairs, £172; do., single, £173 10s.

No. 4—J. Hayden—Rathmichael, single, £168 10s.; do., pairs, £168.

No. 5—H. Pemberton (all cottages)*, £154 each, single or double.

No. 6—Geo. Bower (all cottages), single, £174 each; £170 pairs.

No. 7—Geo. Dixon—Loughlinstown, pairs, £161; do., single, £162; Rathmichael, do.

*Accepted.

RATHDOWN RURAL DISTRICT COUNCIL (No. 1).

Tenders were received on 6th February for building 63 cottages under Improvement Scheme No. 5.

£ s. d.

W. P. Collins, Dublin.

6 cottages Kiltiernan and Glen-

cullen 149 6 0

Louis Monks, Dublin.

Deansgrange 163 10 0

2 single cottages, Loughlin-

stown 159 0 0

6 double cottages do. 307 0 0

4 do. do. Kilbogget 307 0 0

J. P. Richardson, Dundrum.

10 cottages, Murphystown 165 10 0

2 " Ballyogan 165 10 0

2 " Ballyedmonduff 170 0 0

1 " Kilgobbin 173 0 0

3 " Jamestown 175 0 0

4 " Churchtown 154 10 0

Stanislaus Carroll.

1 single cottage, Kill o' the

Grange 128 0 0

1 pair cottages 256 0 0

per pair.

SURVEYOR'S ASSISTANT.

Civil Engineer and Estate Surveyor's Assistant, desires change. Well up in Surveying, Levelling, Mapping, Computation of Areas, and Architectural Work, etc.—P.313 this office.

REVIEWS OF CATALOGUES.

The Patent Stone Dressing Tool Company, Limited.—Wicker Saw and Tool Works, Sheffield, send us a leaflet, illustrating some of their tools, of which, by the way, they are makers for all trades, while making a speciality of tools for stone-dressing and similar purposes. Some of the last-named are illustrated on the sheet before us, and, in addition, there are such ordinary implements as hatchets, saws, spanners, picks and screw drivers, along with more unfamiliar tools, of which engineers' chisels, yarning iron and metal splitting saws are examples. Prices, and full particulars can be had on application to the manufacturers at the address above given.

We have received a very interesting catalogue from Messrs. **A. Walker and Son, Ltd.**, of 14 King-street, Leeds, who are concrete specialists and reinforced concrete contractors. This firm, though hailing from England, may be truthfully described as an Irish one. They have an office in Dublin at 36 South Frederick-street, and are the owners of a quarry at Killiney, from which they export granite setts, kerbs, etc., to all parts of England and Scotland, as well as supplying them to Irish buyers. They have executed large paving and footpath contracts in various parts of this country, notably 50,000 yards of work of these classes in the Pembroke Township. The catalogue deals principally with their granite stone pavements, concrete pavements, mosaic pavements, and fireproof floors. Illustrations are also given of other specialities of the firm, including Walker's Raised Reticulated Treads, and their Concrete Steps with Rubber Treads. Details to scale are likewise given of staircases in large buildings and concrete floors constructed by the firm, who are prepared to carry out reinforced concrete work in any of the recognised systems. The catalogue, which can be had from Messrs. Walker at either their Leeds, London, or Dublin addresses, also contains a list of some of the principal contracts carried out by them, from which some idea of the magnitude of their operations may be derived.

Velure.—We have received a handbook, dealing with this well-known paint, from the makers, Messrs. C. Chancellor and Company, 13 Clerkenwell Road, London. Velure is a perfect Japan paint, superseding varnish, with remarkable spreading, elastic, and weather-resisting properties. We have personal experience of Velure for both indoor and outdoor purposes, and have found that it quite fulfils all that is claimed for it by the makers, though to persons unacquainted with the paint, some of the statements in the catalogue might appear extravagant. The most remarkable thing about Velure is the exquisite surface to which it sets when completely dry. This is not only beautiful in appearance, but resists wear and tear to an extraordinary degree. Velure can, therefore, be used for such varied purposes as ships, yachts, bridges, shops, signs, tramcars, carriages, bicycles, furniture, walls, and ceilings. It makes a fine finishing for motor cars, and is so glossy that it can even be used as a cheap substitute for glazed bricks. For indoor decoration it is also supplied in flat colours, and is much superior to distemper for this purpose. More than 120 different shades are stocked, and, in fact, any colour can be matched. The handbook before us gives full particulars and instructions for the use of Velure for many purposes. It also deals with several other specialities manufactured by Messrs. Chancellor. We may mention that the Dublin agents are Messrs. Brooks, Thomas and Company, Limited, Sackville place.

IMPORTS.—Port of Dublin.

February 7—Per City of Frankfort, from Hamburg, 7,560 cakes asphalt, to order.

February 8—Per Lady Martin, from London, 1,000 sacks cement, J. Kelly and Son; 700 sacks cement, T. Archer.

February 9—Per Velinhelia, from Port Dinorwic, 100 tons slates, T. and C. Martin, Ltd.

February 11—Per Argo, from Rouen, 952 bags plaster, to order.

February 12—Per Topaz, from London, 280 tons cement, J. Wallis and Son. Per Lady Hudson-Kinahan, from London, 1,000 sacks cement, T. Dockrell, Son and Co., Ltd.

February 13—Per Vizcaina, from Sapelo, 3,751 logs pitch pine, T. and C. Martin, Ltd.

February 14th—Per Ss. Irishman, from Creetown, 220 tons of crushed granite, Messrs. John Reinhardt and Son, Ltd., Dublin.

February 15—Per Irishman, from Creetown, 230 tons crushed granite, J. Reinhardt and Son, Ltd. Per Lord Londonderry, from Baltimore, 612 pieces oak lumber, sawn; 964 pieces pine lumber, 53 tons roofing slates, to order.

THE IRISH BUILDER AND ENGINEER.

A JOURNAL DEVOTED TO

ARCHITECTURE, ARCHÆOLOGY, ENGINEERING, SANITATION,
ARTS AND HANDICRAFTS.

Every Second Saturday.

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HEAD OFFICE

MARCH 9, 1907.

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TOPICAL TOUCHES.

The new premises of the National Bank on Arran Quay, Dublin, have been completed, and look very well. The work has been carried out by Mr. James Donovan from the designs of Mr. J. F. Fuller, architect.

* * * *

The Royal Institute of Architects have decided to ask the Local Government Board to receive a deputation to lay before them the views of the Institute in reference to the employment of architects under the Labourers Acts.

* * * *

The designs selected in the recent L.G.B. competition for labourers' cottages have now been published. Neither the first nor second premeditated designs seem to be very suitable for this country, the design awarded second prize particularly so. The design awarded third place is by Mr. T. M. Deane, and is decidedly more practicable, but is of a type quite common in houses already built under the Labourers Acts, while there is no attempt exteriorly to relieve the plainness of the design.

* * * *

One thing is certain, in most districts in Ireland it will not be possible to build these houses for the £130 allowed for by the Board. In fact, in fixing the maximum outlay at £130, the Board has seriously undershot the mark.

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A remarkable letter, signed "F. J. Biggar," appears in Monday's "Irish Independent." The writer critically considers the selected plans, and condemns them.

* * * *

In Irish labourers' cottages no casement windows should be used. There should be a big kitchen and one good bedroom, with two smaller rooms. Nothing less will be any use, and no more is necessary.

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In many districts it is impossible to give a house like this for less than £150, and in many as high as £170 or £180. £130 is out of the question.

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A feature of the recent London County Council elections was the return, as a member of the victorious "Moderate" Party, of Mr. George Alexander, the well-known actor. Mr. Alexander's candidature was, it is freely stated, brought about as a protest against the unexampled tyranny of the building regulations in London, to which theatre managers are, perhaps, more subject than any other class of persons. The safety of the public, we all admit, should be one of the first considerations, and to which all others ought to be subservient; but the periodical demands for alterations, amounting almost to rebuilding, made upon theatre managers by the London County Council, indicates nothing more than a spirit of "faddism," emanating from irresponsible councillors and cranks and hide-bound officials, to whom nothing appeals so much as "red tape," in which they glory. What between the County Council and District Surveyors, London builders and architects, as well as building owners, have a warm time of it.

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To know the building regulations and customs connected therewith perfectly is a liberal education in itself.

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We have much to be thankful for in Dublin in that we are spared the afflictions of our brethren over the water.

* * * *

The building trade in Dublin continues very dull, indeed, and there are no indications of any marked improvement during the spring.

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Despite the fact that English Government labour returns show a general improvement compared with last year, matters are no better in London than with us. At the meeting of the London Master Builders' Association the report of the Council for the past year records that "the depression in the building trade in London has become more acute than otherwise during the past twelve months." The report goes on to note the "drastic measures imposed upon the present Government by the trades unions, notably the Trades Disputes Bill and the Workmen's Compensation Bill, the latter of which points to a very material increase to employers' liabilities."

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The Dublin builders have had under consideration an opinion of Mr. J. H. Campbell, K.C., on a case submitted to him on their behalf in regard to the new conditions of contract adopted by the Institute. A copy of Mr. Campbell's opinion, which is adverse to the form of conditions, has been sent to the architects. Elsewhere we comment thereon.

* * * *

The London Surveyors' Institution has issued a memorandum dealing with the employment of quantity surveyors. The Council say that it is becoming increasingly recognised that it is in the public interest that a surveyor should be employed in connection with municipal architectural and engineering works. The Council, however, deplore the practice of inviting tenders for such work. They point out that no Council would think of putting such a slight upon a doctor, solicitor, or barrister, and yet, as they point out, vast sums of public money are at stake, and their waste or otherwise is dependent upon the ability, skill, and integrity of the surveyor. Besides this, the competitive system causes men to tender for the work at a fraction of what a reasonable fee should be for properly trained and qualified men. The result is loss to the public through bad or inaccurate quantities, and we may add that the extent of that loss is seldom or never known or realised.

* * * *

We may mention that we have heard that as a result of the recent action for fees by Messrs. Beckett and Metcalfe against "Argylls, Limited," when the plaintiffs were non-suited on a technical point, that an effort will shortly be made to form an association of surveyors in Dublin, who will act together for their mutual protection, especially in regard to standardising a scale of fees. Such a society would be welcomed by architects and builders, and, indeed, by all right-thinking employers.

THE OLD AND THE NEW CONDITIONS OF CONTRACT.

(SPECIAL TO THE IRISH BUILDER AND ENGINEER).

By W. JOHNSON-ROBERTS, *Solicitor*.

The old conditions of contract remind one very forcibly of an ancient and badly-built house, which bears upon it the impress of generations of jerry-builders and botches to which each owner has added his *quota* and his style, and which now affords an example of all styles and of no style; of good work and of bad, and whose whole harmony consists in the unanimity with which every part agrees to disagree with every other part. The new conditions may be compared to the same old house now resplendent in all the meritorious glory of modern improvements (?) inflicted upon it by its latest owner.

It is notoriously more difficult successfully to remodel old structures than to erect an entirely new building. Yet some peculiar fascination seems to hang over work of this kind, particularly so when the old work was of a complicated nature. Whether enthralled by the glamour of the past, or overwhelmed by the difficulties of the present, I know not; but the course generally adopted is either to patch up the old work or build the new, incorporating in it too frequently all the defects of the old, at the same time destroying many of such merits as it originally had; anyhow, the resultant production is nearly always inferior to its predecessor.

The new conditions contain nearly all the faults of the old,

together with some peculiar to themselves. So involved and complicated are they, that one may truly say that to know, understand, and appreciate them in all their bearings, is to possess a liberal education in English literature and in English law. If one may judge by the archaic sense in which words are used in the earlier portion of the conditions, that portion at least must date from the days of Milton, and even might possibly have been co-eval with Noah and formed part of the building contract of the Ark. In par. 2 we read about the completion of works, "*comprehending what may be reasonably implied, etc.*" Modern usage would substitute "*including*," or some such word for "*comprehending*." In clause 5 (new conditions) "*All work . . . brought and left upon the ground.*" "*Work*" in its modern sense roughly connotes "*labor*." To apply it, as here is done, is to use it in a more or less obsolete manner. Again, in par. 8 (old conditions) we have this lucid sentence, "*and should there be no balance on either contract or extra work, the contractor shall be liable for same!*" (i.e., for "*no balance*"). However, these small matters pale into insignificance when one regards the regular galaxy of errors, redundancies, obscurities, omissions, and contradictions which appear in the body of these marvellous conditions. How Darwin would have revelled in dissecting them, and tracing their evolution from their obscure origin in the stone age, until now, resplendent in the beauty of fulfilled promise, they stand revealed, their destiny accomplished—the bread fruit-tree of the garden of the law! To destroy these venerable conditions seems almost a sacrilege. To a lawyer, especially, it looks like cutting the ground from beneath his feet, uprooting his own roof-tree, or slaughtering his best milch cow. But public weal stands paramount to private interest. The *vox populi* (in this case the mingled clamour of architects and contractors, employers and employed, engaged in deadly and never-ending strife) demands with no uncertain voice that this long-standing menace to the peace of the building world must show a *raison d'être* for its existence, or die the death. No sufficient reason can be found.

The old conditions were entirely too long; the new ones are longer.

The author of the latter seems to have confined his revision to an attempt to bring them into conformity with the English conditions, which, if such a thing is possible, are even more unnecessarily complicated and involved than the Irish. For example, condition 8 of the old (Irish) conditions runs to 29 lines of print, in the new conditions it is expanded to more than double (82 lines). The major portion of the addition consists of wholesale extracts from the English conditions, par. 3 of Clause 8 appearing as par. 25 in the English conditions *verbatim et literatim*. Clause 14, par. 5, appears in the English conditions as par. 31, the sole alteration being that the last three lines are changed for the worse, and the words, "*Clauses 8, 11, and 14*" are substituted for the words "*Clause 30*" (Eng.). No times are mentioned in any of the foregoing (Irish) clauses

within which the employer should pay the contractor any sum, although in certain rare cases therein set out, periods are mentioned when certain sums became payable, but no time is mentioned within which they should be paid. This obscurity arises from the fact that the English conditions have been slavishly copied, instead of being modified to suit. O'Connell's dictum to burn everything English except their coals, might, with considerable benefit to Ireland, be applied to the chaotic resultant which now does duty for the Irish conditions of contract.

Another fault

is the obscurity of their diction, which, in turn, is due to their prolixity, to the fact that they represent the work of many hands, and were drawn at different periods by people who had different objects in view. One can easily trace the condition that owes its origin to the architect, and makes him sole arbiter of the field and the condition (entirely inconsistent with it) which owes its existence, no doubt, to the sturdy attitude of some long-forgotten contractor, that gives the latter a right to arbitration. There they stand cheek by jowl in the new conditions as in the old, unreconciled and irreconcilable.

The conditions, apparently, were formed somewhat on the snowball principle, and started possibly with a few crude conditions capable of being written on a half sheet of note-paper. On they have rolled through the years, gathering conditions and clauses as a snowball gathers snow, increasing in size and obscurity. Having absorbed everything absorbable in Ireland, and attempted to make a Gargantuan feast of the greater part of the English conditions, they now lie helpless and distended like a boa constrictor after devouring an ox, ready to burst from very repletion.

What is omitted

supplies almost as large a field for criticism as what is included. One would imagine that, in such an ocean of words, at least everything that was essential would be found. But such is not the case. Start with the "*Articles of Agreement*;" pursue your quest through the dreary waste of the general conditions. Start with Clause 1, wade through all kinds and conditions and positions, possible and impossible, one might almost add conceivable, until you arrive exhausted in the happy heaven of Clause 22; yet nowhere does it appear what "*prime cost*," "*particular cost*," or "*p.c. prices*" mean. In Clause 10, par. 1 (new conditions), a "*detailed estimate*" appears on the scene. In par. 2, of the same clause, a "*schedule of prices*" makes its appearance, in other places "*a specification*." "*Priced bills of quantities*" does not appear. These may possibly be all one and the same thing, or they may not. *Quien sabe?* At any rate, the draughtsman of the conditions seems to have put a small estimate on their value, as nowhere throughout the length and breadth of the agreement or conditions is there anything binding on the contractor to furnish a "*priced estimate*," "*schedule of prices*," or "*specification*," call it by what name you will. The Conditions of Tender, which generally prefaced the old conditions, provided for this, even though in a clumsy sort of way. No useful end would be served by criticising in detail either the old or the new conditions. That they are faulty, clumsy, and obscure, is admitted by all. There is, however, one portion of the new conditions which might with advantage be considered with some detail. I refer to the clauses as to arbitration, and those defining the powers of the architect, especially Clause 13, par. 2 (new conditions). I have before me a copy of the opinion of one of the ablest lawyers of the day,

the Right Hon. J. H. Campbell, K.C., M.P.,

upon the clauses I refer to. While agreeing with him as to their legal effect, I cannot go so far as to admit that "*they are an outrage upon justice and common-sense*." I certainly think it unfair to contractors that a nominee and representative of the person to be made liable should act as judge in his principal's own cause. A similar objection, but in a stronger form, applies to the contractor being constituted judge of his own work. Yet it is clear that honest differences of opinion must of necessity arise between the parties, and that some method which is ready, reliable, expeditious and cheap should be provided to settle them. Arbitration in some form is clearly indicated. I need hardly point out that the architects, as a body, dislike

the thankless, unremunerating, and, to some extent, unpleasant task of acting as arbitrator in cases in which they themselves and their clients are interested. I quite well understand and appreciate their delicacy of feeling. Yet such has been the confidence of the building trade in their honesty and integrity (a confidence which I have never known to be misplaced) that no objection has ever been raised to the very extensive power conferred upon them, even under the old conditions. But the fact still remains, that the exercise of these powers by an architect places him very frequently in a position of great difficulty. His self-interests may conflict with those of his employer, or those of the contractor, and even though he holds the scales of justice as fairly as he can between the parties, rarely does he succeed in pleasing both.

A Solution of the Difficulty.

The questions which usually arise between the architect and the contractor may be divided into three classes. *First*, those in which the architect appears to be entitled to be the sole judge; *Second*, those which should be left to arbitration, and *Third*, those in which an option should be given, either to arbitrate or have recourse to a court of law. *In the first class* I would place all questions as to the meanings of drawings, the proper protection of works, the suspension of same, what works are to be omitted or varied, the removal from the premises or dismissal of unsuitable persons, and such other questions as might, by consent of the parties, be placed in this class. *In the second class* I would place all questions as to the quality of the materials used, or the workmanship, the length of time to be allowed for delays, the sums payable on certificate, the giving or withholding of certificates, what constitutes extras, deviations or omissions, and the amount to be allowed to, or deducted from the contractor for them, in fact (save by consent of all parties), every question which would arise between the employer, contractor, and architect, save those set out in the first and third classes. *In the third class* I would place all questions of law which might arise as to the legal construction of the conditions or agreement, or any part of them. Of course, I do not intend to formulate the above division as the only satisfactory division of the differences which might arise, or even as the best division. I only submit it tentatively for criticism. I shall now offer my suggestion as to how questions arising under each of these different classes should be dealt with. *Questions coming under Class 1* to be decided by the architect as sole arbitrator. His finding to be final and conclusive between the parties. As the questions scheduled in this class are chiefly of such a nature as would require to be immediately decided, and are also of such a kind as would be peculiarly within the province of the architect, the fairness of allocating such questions to him solely will be generally admitted. *Questions coming under Class 2* (and by consent, *Class 3*), to be tried by a permanent official board of arbitrators, one to be a qualified, but non-practising architect, nominated by the Royal Institute of Architects of Ireland, or otherwise equitably selected; the other to be an experienced, but non-practising contractor, appointed by the Master Builders' Association, with power to appoint an umpire; and in cases where questions of law arise, to appoint a practising solicitor to act as legal assessor and sit with them. Their decision on all matters submitted to them to be final and conclusive as between the parties thereto. *Questions of the Third Class* would (except by mutual consent) be tried by a court of law. I would suggest

A Very Simple Procedure.

for this board, somewhat on the lines of what is legally known as "a case stated." The parties would agree as to what the questions at issue were; these would be reduced to writing, and, together with the reasons on both sides (also in writing), furnished to the board, who, in consideration of a small fee, would decide thereon. This fee to be payable by the losing side. The decision of the arbitrators to be final and conclusive between the parties. If either side wishes personally to appear before the board they could do so, but no expenses for counsel, solicitor, or witness to be allowed under any circumstances; and whenever same attended, their expenses to be defrayed by the party on whose behalf they appear. The effect of an arbitration clause on these lines would be, that while giving the architect full control of all matters over which, from an equitable point of view, he should have control, yet it prevents either the contractor or employer being involved in expensive litigation about matters of practice which are best decided by a board of practical men; while, at the same time, it preserves to all the right of recourse to the King's Courts wherever necessity for same arises. To me it seems

quite clear that in certain matters the architect must have absolute power to finally and conclusively decide (if necessary) on the spot. To deprive him of that power would be to place him in a false position as one responsible for the due performance of certain works, and yet incapable of compelling their satisfactory execution, save by a circuitous process which would defeat its own end. To make him sole arbiter in *all* things would be legitimate only if he were at the same time infallible and impeccable. It would also deprive the objecting party of that right of appeal for justice to the Courts of the Realm, which is the privilege of even the poorest subject of the King. In conclusion, I think there must be a certain amount of give and take on both sides; neither the architects nor the contractors can live without mutual support, tolerance, trust, and forbearance. A little of each of these very common, but necessary, virtues would, in my opinion, go a long way towards solving all difficulties.

The Remedy.

It is clear, from what I have written, that neither the old nor the new conditions exactly meet the requirements of either the architects or the contractors. Along with having the many faults I have pointed out, they are inequitable in many ways, leaning at one time to the side of the contractor, at another to that of the employer, and doing complete justice to neither. The only remedy is a new set of conditions framed in a simple yet comprehensive manner, containing all that is essential, and nothing that can be dispensed with.

DUNDRUM.

Proposed Drainage Improvements.

At Dundrum Courthouse Mr. Alfred D. Price, Local Government Board Engineering Inspector, held an inquiry into an application made by the Rathdown No. 1 Rural District Council for a provisional order entitling it to take over certain lands for improving the sewerage of Dundrum. The estimated cost of the works is £13,700, and a loan for that amount was applied for.

Mr. W. J. Shannon, Solicitor for the Sanitary Authority, said that as it was impossible to have a connection made with the Rathmines and Rathgar main drainage at present, owing to an objection by the Port and Docks Board, the Council considered they should not remain inactive in the hope they would get access to the Rathmines sewers. Therefore the Council had prepared an alternative scheme. At the previous inquiry evidence was given by the medical officers, etc., as to the necessity for the sewage, and he did not summon them as witnesses, as the minutes were in possession of the Local Government Board.

Dr. J. W. Ussher, a member of the District Council, stated he had formerly been medical officer of health for the district for a considerable number of years. A scheme of sewerage for the district was most necessary. He was with Mr. McCarthy when making a selection of the sites for the septic tanks. It was sufficiently removed from any residences not to be a nuisance, and partly hidden from the public view. He thought it an ideal site. It was important, in the interest of the health of the township, that the scheme should be carried out at once.

Mr. McCarthy, Engineer, gave details of the scheme. He provided for a population of 2,500.

Mr. Shannon said they had received the consent of the two tenants of the land which it was proposed to take for the septic tanks to agree to arbitration. The landlord had not yet consented. The cost of the land was not included in the £13,700.

Dr. Francis J. Cahill, Medical Officer of the District, said the scheme was essential. The cottages in Milltown, he said, caused nuisances, and were injurious to public health. Not one of these cottages were fit for human habitation. If the septic tanks were 190 feet away from the public road and residences he did not believe they would be injurious to health.

In reply to Mr. Edmondson, Manor Mill Laundry, Mr. McCarthy said the tanks would cost about £3,530. They were taking two acres of land for the tanks.

Mr. Thomas Hackett, whose land it was proposed to acquire, was also examined.

Mr. Joseph Edmondson stated the point they felt was that when an outlay of this kind was made inquiry should be held as to a system that would drain the entire district. He opposed the present scheme, because it would not carry away the water of the laundry.



A.A.I. JOTTINGS.

Visit to the Main Drainage Works.

The visit which took place on Wednesday, 27th February, to the Main Drainage works of the city was most successful in point of interest, attendance of members (17), and weather, etc. The party were met by Mr. Buckley, M.I.C.E.I., Corporation engineer; Mr. Martin, and the overseer, and conducted over the pumping station. Here the sewage is screened, and then elevated 22 feet to the high level-sewer. One rotary pump and one boiler were dealing with the whole sewage at the time of the visit. A second set only need be requisitioned for extra work. The full demand of machinery and power is, however, provided for in duplicate to contend with contingencies.

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Indicators show the immediate amount of pumping demanded. Forced draft to boilers, steam-heated water-feeds, and automatic stoking, etc., are necessary parts of modern work of such a nature.

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The permanent limeing plants within the same enclosure are nearing completion. By their agency the sewage will automatically be prepared for the precipitation tanks, by the proper admixture of milk of lime. The mixing, feeding, and gauging apparatus is of much interest.

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The architectural element of the pumping house and residence are well worthy of recognition.

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The settling tanks at the Pigeon House are quite a little journey further. The high-level sewer delivers here to a distributing canal, with the settling tanks on either hand, and temporary limeing plant is placed near the sewer's end. At will the sewage is made to enter any one tank by opening a valve on the canal, and at the further side a floating arm draws of the clearer fluid to a wide effluent gathering channel.

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The sludge, when the tank is sufficiently emptied, being taken through a culvert directly under the distributing canal, is conducted away to be eventually carried out to sea.

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The tanks have their beds laid to a gradient towards the culvert for cleansing, and are each provided with two rows of scum boards to keep the draw-off pipe free. Excessive filling would deliver the surplus over weirs to the collecting channel.

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The effluent gathered from either set of tanks is let off to the river through a set of tide valves, and delivers near the old harbour mouth. The channel, which is U-shaped, lying as it does on three sides of the assembled tanks, is sufficiently wide and extensive to act as a penstock chamber during the period of high tide.

The sludge from the culvert is stored in a raised tank, to which it is pumped, in readiness for shipment—the excess of water present being returned, to again go through the process in the settling tanks.

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A vessel at the harbour's quay receives its sludge cargo, to be taken seven miles and deposited past the Bailey Light, at the correct turn of the tide.

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The Corporation, and all those concerned are to be congratulated on the way in which the disposal of Dublin's sewage has been provided for. The A.A.I. are indebted

to them, Mr. Harty, and those who conducted the members so cordially over the works, and showed the actual working in every particular.

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The works were designed by Mr. George Chatterton, M.A., B.E., T.C.D. (a son of Vice-Chancellor Chatterton), of London, Consulting Engineer, in conjunction with the City Engineer, Mr. Spencer Harty, M.I.C.E.; the Resident Engineer during the construction being Mr. H. H. Hellins, M.I.C.E., and the Architect to the Corporation for all the building works connected with the Main Drainage, was Mr. Stephen Ayling, F.R.I.B.A., of London. The contractors for the main sewer were Messrs. H. and J. Martin, of Dublin and Belfast, while Sir Weetman Pearson and Co., were the contractors for the tanks and other works connected therewith. The contractors for the building works were Messrs. J. N. Stewart, of Dublin and Belfast.

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The meeting to hear Mr. R. Caulfeild Orpen's paper on "The Modern Art Gallery for Dublin," could by no means be termed crowded, but the audience made up in enthusiasm what it lacked in numbers. Our first President had, as usual, something of architectural moment to say, and said it in his peculiarly interesting and humorous manner, illustrating his remarks by those rapid sketches which unfortunately one now so seldom sees. Full of thought, from grave to gay, from jest to earnest, Mr. Orpen pursued his theme of the necessity for wider public recognition and support for an Irish school, not the four round-towered, interlaced ornament eccentricity, but a school breathing a proper individual, yet national, feeling. It is possible that a piece of the paper may later be published in these columns, and it, therefore, cannot be dealt with in detail in these notes. But there is little doubt that Mr. Orpen's audience was thoroughly at one with him in his remarks, and the subsequent discussion was far more animated than usual.

"WEE MACGREGOR."



ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

An Ordinary Council Meeting of the Institute was held at 20 Lincoln Place, Dublin, on Monday, the 4th inst.

The chair was occupied by the President, Mr. W. M. Mitchell. There were also present—Messrs. C. A. Owen, R. C. Orpen, F. G. Hicks, G. C. Ashlin, A. E. Murray, H. Allberry, F. Batchelor, C. H. Ashworth, and J. H. Webb, Hon. Secretary.

The minutes of the previous ordinary meeting, and of special meetings on the 18th and 25th February, were read and signed.

Several important matters having been dealt with by correspondence, it was decided, in view of the unsatisfactory manner in which architectural competitions are advertised and assessed, that a simple code of rules suited to Irish circumstances should be drawn up and circulated amongst practising architects and clerks of public bodies throughout Ireland.



The new Hospital for the Smethwick and Oldbury Joint Isolation Board is being warmed and ventilated by means of Shorland's double-fronted patent Manchester stoves, with descending smoke flues, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

The Irish District Meeting of the Association of Municipal and County Engineers is to be held at Belfast on May 17th and 18th. In addition to the usual business of a district meeting, visits will be paid to the various works of interest in and about the city, including the new City Hall. It is now nearly nine years since the last Irish Meeting of the Association, which was held in August, 1898, at Cork.

ARCHITECTS WANTED

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ARKLOW HARBOUR.

A considerable amount of uncertainty appears to still exist as to the manner in which Arklow is to benefit by the £14,000 Government grant. This grant was made in 1905 for the purpose of improving the Harbour by an extension of the South Breakwater, the object of the extension being to increase the sheltering accommodation and check the travel of sand from the south towards the Harbour entrance.

The Harbour Commissioners, in the first instance, asked the Government to furnish them with engineering assistance; but the Government refused to take any responsibility whatever in the matter, and informed the Commissioners that they must secure the services of their own engineer.

As a result, the following advertisement appeared in the Press:—

"NOTICE TO MARINE ENGINEERS.

"The Arklow Harbour Commissioners require the services of an Engineer to prepare plans for the extension of the South Breakwater and superintend the carrying out of same, such plans to meet the approval of the Harbour Commissioners and the sanction of the Lord Lieutenant. Parties applying for the position must satisfy the Board that their appointment will have the approval of the Lord Lieutenant. Applications to be sent, stating fees, etc., to the Secretary, Harbour Commissioners, before 9th January, 1906." (*Freeman's Journal*, December 13th, 1905.)

A great many engineers from England, Scotland, and Ireland sent in their applications for the post, and we are glad to think that Mr. Allanson Winn, an Irish engineer, who has been established in Dublin for many years, and who is specially interested in foreshore protection and sea works, was selected by the Harbour Commissioners. This selection was confirmed by a unanimous vote of the Harbour and Town Commissioners, held in April last, and the appointment was subsequently sanctioned by the Government.

From the terms of the advertisement, there could have been no doubt in the minds of either the advertisers or the applicants that the appointed engineer, whoever he might be, would have the work and receive the usual percentage on the amount of the grant.

After a considerable delay, in no way attributable to the Harbour Commissioners or their Engineer, borings were taken in the line of extension decided upon by the Harbour Board, whose Engineer then prepared plans and sections for the proposed extension. These plans were in due course submitted to Government, and were rejected—not because of any inherent objection to the plans themselves, but because the Government had decided not to sanction any extension whatever of the South Breakwater. That is to say, having at first declined all responsibility, they took upon themselves the whole responsibility of forbidding the work for which the Engineer had, at their own request, been appointed. The question naturally arises, why did the authorities allow the expenditure of a portion of the grant on borings, etc., if they had made up their minds not to have the work carried out? Surely they should not have allowed this waste on preliminaries which would not be necessary? What follows is even more remarkable, for at a meeting of the Harbour Board, held on January 8th, and attended by representatives of the Department of Agriculture and also of Kynoch's works, the Engineer of the C.D.B. produced plans for the construction of a tidal basin on the right-hand bank of the river, and, with a fine disregard to the courtesy usual in the profession, advanced these plans without the slightest reference to the appointed Engineer. The Harbour Commissioners, who had previously been unanimously in favour of the extension, at once became unanimously in favour of the basin scheme, which was thus forced upon them, and they agreed to hand over the whole of the Harbour dues, etc., to the Department for the next ten years on the understanding that the Department shall keep the Harbour open for that period by means of dredging.

If the money is to be expended on what may be called "inner improvements," the wisdom of laying it out on this huge basin seems open to grave doubt. A more sensible plan—one which would benefit the townsfolk on one side and Kynoch's on the other—would be a deepening of the river bed, which would give an increased and useful wharf on both banks higher up the river.

It will probably occur to many people that the action of the Department of Agriculture and Technical Instruction, in advancing their plans, etc., in this unceremonious manner, and offering to take on work which a private consulting engineer had been appointed to do, is somewhat hostile to the prospects of Civil Engineers in this country.

It is hard enough to obtain any appointment in open competition, and certainly those who work hard enough to obtain such appointments—and especially those who live in, and spend all their earnings in the country—should receive every encouragement. In this particular case the Department apparently wishes to take bread out of the mouth of the appointed Engineer; indeed, there is an entire absence of encouragement as well as courtesy.

It also comes somewhat as a surprise that agricultural experts should take upon themselves the construction of harbours, but possibly this branch of Civil Engineering is in some way connected with the Technical Instruction which forms part of the curriculum. "Ne sutor supra crepidam" evidently does not apply, and we may yet find the Department becoming like the P.W.D. in India managing and arranging all engineering and other works.

The situation is really rather curious for, as matters stand, Mr. Winn is still the Engineer to the Arklow Harbour Board; he has not been dismissed and has not resigned, but notwithstanding these facts the Engineer of the C.D.B. is making all the preparations for constructing the basin, without any reference to him. It would be interesting to know the opinion of any first-rate Harbour Engineer has been taken on the basin scheme, or whether the C.D.B. engineer has recently thought of this method of utilising the grant.



EXTRAORDINARY PROCEEDINGS AT KILLARNEY.

Last week we referred to the peculiar stipulation in the advertisement of the Killarney Rural District Council for the position of Engineer, that the applications should be in the "candidates' handwriting." The following report of the proceedings at the meeting at which the appointment was made will be read with interest, bearing out, as it does, our remarks as to the manner in which appointments are sometimes made by Rural Councils in Ireland:—

Mr. McCartie (to Clerk)—How many tenders have you? Clerk—I have four.

Mr. McCartie said before the tenders were opened, he really thought they should give it to a local man. Mr. John Gallivan had done his work very well, and he proposed that Mr. John Gallivan be appointed (hear, hear).

Chairman—Let us read the applications.

Mr. McCartie—I propose he be appointed.

Mr. Daly seconded the motion.

Mr. McCartie—He has done his work well, and he is here on the spot.

Several Councillors said a native should be appointed.

Mr. D. O'Shea—I'll go for the cheapest man.

Mr. McCartie—I propose the tenders be not opened, and that Mr. Gallivan be appointed.

Mr. D. O'Shea—I propose the cheapest man.

Chairman—I am afraid you must open the tenders.

Mr. McCartie said they only asked for tenders at the fee laid down; they were quite within their power of appointing.

Mr. J. J. Price—Is not there a scale laid down by the Local Government Board?

Mr. D. O'Shea—If we get a cheaper man, we will take him. He proposed that the tenders be opened.

Mr. Kearney said at all events he would like to have tenders opened.

Mr. D. O'Shea said in justice the tenders should be opened, otherwise the Board would be closing down competition altogether.

Mr. J. J. Price made some remark towards Mr. O'Shea, but it was lost in the confusion.

Chairman—Order, order.

Mr. D. O'Shea said no one spoke to him about the appointment. He proposed, and Mr. J. O'Shea seconded, that the tenders be opened.

A division was taken, when there voted: For opening, 20; against, 25.

Mr. McCartie proposed that Mr. Gallivan be appointed Engineer.

Mr. A. Moynihan seconded.

Mr. Coffey asked what price.

Chairman—There is a scheduled price.

Mr. Coffey—How much per cent? What are the terms?

Clerk said there was an order made not to open the terms.

Mr. McCartie said his proposition was to appoint him at the scale laid down by the Local Government Board.

Mr. J. McGillicuddy—This is a job.

Mr. A. Moynihan—We will do a job.

Mr. J. McGillicuddy—A public job it is.

The Chairman asked if there was any other candidate, and there being no other one proposed, declared Mr. Gallivan elected.

Mr. D. O'Shea—Take me dissenting.

Clerk—Who else dissents?

Mr. J. O'Shea—I dissent.

CORRESPONDENCE.

The Prevention of Corruption Act.

LETTER FROM MR. W. JOHNSON-ROBERTS.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—I have read with interest "A Manufacturer's" comments on my article on the above Act. His difficulties seem to arise chiefly owing to the want of a *consensus ad idem* between us as to the meaning of the words "prime cost." From a manufacturer's point of view, the prime cost of an article is the price the manufacture of the article costs him; from a wholesale dealer's point of view, the prime cost is the cost of manufacture plus the manufacturer's profits; from the retailer's standpoint, the prime cost is the cost of manufacture, plus the manufacturer's profit, plus the wholesale dealer's profit; and, from the user's point of view, to all the foregoing must be added the retailer's profit, which total represents to him the prime cost. The amount actually paid by the purchaser of an article is to him its prime cost, although as we have seen that figures may vary, as it depends upon the person from whom the purchase was made. The next point to consider is whether or not the purchaser can, as between himself and a third party, add to the sum actually paid by him any monies allowed, not charged or refunded to him as a discount or bonus. When we have satisfactorily settled in what capacity the contract was made we have the answer we require. If he purchases for himself as principal, and resells to a third person, he is entitled to whatever profit he can get, whether from the vendor or purchaser. If he purchases in a representative capacity, say, as agent for another, he is not entitled to any profit on the transaction, save the remuneration (if any) which the person employing him pays him for his services. I now come to the example given in my article, and referred to in "A Manufacturer's" letter. Can a building contractor keep for his own benefit trade discounts on p.c. goods purchased by him for his employer? Whether the employer will benefit by the fact that no discount is allowed the building contractor on p.c. articles, or whether the latter will lose in the long run by not receiving what he has hitherto regarded as part of his legitimate profits, or whether the effect of the Act will be beneficial or otherwise to the parties affected, are matters altogether outside of the present discussion, and should have no weight in arriving at a conclusion as to the legal changes which the Act will effect. With these only am I at present concerned. The whole question in the example really is, in what capacity was the purchase made, whether as agent or principal? The words of the Act seem conclusive. They are: "For the purposes of this Act the expression 'agent' includes any person employed by, or acting for, another." This narrows the issue to one point, which is, is or is not the building contractor acting for, or employed by, another? If he is, he is an "agent" within the meaning of the Act. To say that a building contractor has always been allowed to retain for his own benefit discounts paid him on p.c. articles, that such is the custom of the trade, that such transactions have been carried on honestly and in good faith for a length of time, and that traders would find it difficult to alter their mode of dealing, is no answer. If it were, almost every new Act of Parliament would be inoperative. It was to put an end to such trade customs that the Prevention of Corruption Act was passed, and since it came into operation such trade customs can no longer be legally continued. Of course, my remarks as to discounts only apply to p.c. articles, which usually form only a small portion of a building contract.

There are a couple of other matters in your correspondent's letter to which I would like to refer. He states "that all architects know that the builder gets a discount off the retail price." That is not quite accurate. In the majority of cases the architect does not know whether or not the building contractor has received any, or how much discount, although he may be aware of the existence of a trade custom to that effect. It is manifest that unless he knows that such a discount has, *de facto*, been paid to the contractor, he cannot inform the principal even if he conceived it to be his duty so to do. If he knew such a discount had been given it would be clearly his duty to inform the building employer, and if he did not do so, he would, in my opinion, lay himself open to a prosecution by using for the purpose of his certificates documents—i.e., the bills of quantities and specifications which were erroneous or

defective, to his knowledge, in a material particular whereby his principal was deceived.

Your correspondent gives a hypothetical case in which he points out the difficulty which would arise if the merchant or manufacturer had to ascertain, before entering into a contract with a building contractor, whether the latter was acting as principal or agent. The law throws no such *onus* upon the merchant or manufacturer. They incur no liability unless they act "knowingly" or "corruptly." To give a receipt, for example, to any person where the fact that discount was allowed was suppressed, would very probably be held to show guilty knowledge of the use to which it was to be put. If the vendor believes he is acting honestly, neither he nor the purchaser should have any objection to state the actual price paid and the amount of the discount allowed on the document. Not to do so would seem to point to a desire to hide the facts from some person who would be interested in knowing them.—Yours, etc.,

W. JOHNSON-ROBERTS.

24 Bachelor's Walk, Dublin.

The New Conditions of Contract.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—I have been shown, by a friend, a copy of the opinion of Mr. J. H. Campbell, K.C., M.P., on a case submitted to him by the Master Builders' Association, in relation to the new conditions of contract. This opinion, and the action which drew it forth, is the inevitable result of the hasty adoption, by our Institute, of the new conditions of contract, without discussion, and without, at all events, the formality of consulting the builders. I have little or no direct personal interest in the matter, having almost ceased to practice, and such work as I still have, I can get done by builders outside the Master Builders' Association, on practically any form of contract. The opinion merely interests me as a member of the Institute of Architects.

Now, while I, as an humble member, deprecate the hasty fashion in which these conditions were finally adopted, still I think we, as Architects, should stand together in this matter. If any of your readers have the opportunity of examining Mr. Campbell's opinion, they will see that he is very wide of the mark in many respects. To begin with, no question of law was submitted to him; therefore his opinion is of no more value than, say, my own. The justice or otherwise of a contract is a matter for the contracting parties, and Mr. Campbell's opinion thereon has, therefore, no special value or interest.

At the very beginning of his opinion, it is made evident that he neither studied the new conditions carefully nor had the old ones before him, for he says that the effect of Clause 13 would be to leave the Builders at the mercy of any Architect; where, as a matter of fact, this identical clause has been practically in use, without objection on the part of the Builders, ever since the original conditions were drafted; the intention being, as he correctly infers, to make the Architect absolute judge. Mr. Campbell falls into the very curious error of supposing this to be a new clause and a new principle. The decision of the Architect on all questions, save extras and omissions, duly authorised, has always been, and should be, final, and it is no new principle, as Mr. Campbell supposes; otherwise, half the reason for the Architect's employment is swept away. As a matter of fact, I have known of conditions, making the Architect final and conclusive judge on all and every point arising, frequently tendered on, being freely signed by prominent members of the Builders' Association. In brief, to use a very vulgar expression, Mr. Campbell is evidently "talking through his hat." The implied threat of combination on the part of the Builders should be met firmly by our own Institute; may I venture, however, to suggest, that the conditions might be re-cast even now, and rendered less diffuse and aggressive in tone, while, at the same time, conserving the full authority of the Architect. I, with great respect, suggest that this should be done, under the advice of the best Senior Counsel procurable, and after full and friendly conference with the Builders.

I do not suggest any wavering through the fear of the Builders' threats, but rather a friendly policy of give and take, while perfectly firm on matters of essential principle.

As to Mr. Campbell's reference to "ousting" the courts of their jurisdiction, this has been the intent and practice for generations past, and so far from being condemned, has been not only upheld, but welcomed by the courts again and again in complicated cases. It is obvious that under the contract system some person must be sole judge, unless there is to be constant and endless litigation.—Yours, etc.,

"M.R.I.A.I."

MASTER BUILDERS' ASSOCIATION AND THE NEW CONDITIONS OF CONTRACT.

SIR,—I have been requested by my Committee to send you herewith copies of the recent correspondence in connection with this important subject.—Yours, etc.,

55 Great Brunswick-street,
Dublin, 6th March, 1907. JOHN GOOD, Hon. Sec.

55 Great Brunswick-street,
Dublin, 4th March, 1907.

DEAR SIR,—With further reference to your letter of the 17th January last on the subject of the Conditions of Contract, which has been before my committee; having carefully considered the whole matter, it was resolved to correct or confirm the opinion already received by them on these Conditions, and also on the London Conditions, as proposed for adoption.

With this object, the matter was submitted to the Right Hon. James H. M. Campbell, K.C., M.P., whose opinion has now been received. I have been requested to send you a copy of this opinion, and to ask that it may be brought before your Council at their early convenience. My Committee are of opinion that your Council, when they have considered the views of this leading authority in Ireland on the subject of building contracts, will at once see that it is impossible for the Master Builders' Association to accept these conditions.—I remain, yours faithfully,

(Signed) JOHN GOOD, Hon. Sec.

James H. Webb, Esq., Hon. Sec.,
Royal Institute of Architects, Ireland.
[The opinion of Mr. J. H. Campbell will be found quoted in our leading article.—Ed. I.B. and E.]

(Copy.)

20 Lincoln-place, Dublin, 14th January, 1907.

DEAR SIR,—I beg, in reference to your letter of the 5th inst., to inform you that it has been laid before my Council, who have given it their careful consideration.

After discussion, the following resolution was unanimously adopted:—

Resolved:—"That this Council advises the general body of members of this Institute to recommend their clients, in their own interest and that of the builders, to adopt for the present the Conditions of Contract as recently revised under the advice of eminent counsel, and passed by the members of this Institute.

"If it is found desirable, after a fair and equitable trial of the working of these Conditions, that they should be modified in the mutual interests of employer and builder, the Council will be prepared to reconsider them."

I am further desired to add that my Council sincerely hopes that your members will give these conditions a fair trial, in view of the intention of the Council to reconsider them if, after due trial and experience of their working, some modification may be found necessary in the mutual interest of the employer and builder.—I am, yours faithfully,

JAMES H. WEBB, Hon. Sec.

John Good, Esq., Hon. Sec., Master Builders' Association, 55 Great Brunswick St., Dublin.

55 Great Brunswick St., Dublin, 5th January, 1907.

"Re Proposed Conditions of Contract."

DEAR SIR,—My Committee have had before them on several occasions your letter of the 16th November last, and from the attitude you have adopted with reference to the proposed Conditions of Contract, it is necessary for us to deal with this matter at some length, so that all may clearly understand the facts that have led up to the present unfortunate deadlock.

For many years prior to 1898 there had been a strong desire on the part of those engaged in the building industry to consolidate the various Conditions of Contract then prevalent; with this object, our members set to work and prepared a set of Conditions, which were submitted for your approval on the 23rd of June, 1899. Your Council replied that instead of setting aside the then Conditions in use, we should suggest amendments. This was done, and on the 18th of May, 1900, we sent you the amendments proposed in the Conditions as used by the President (Sir Thomas Drew), Mr. Mitchell and others, to which you replied that the new Conditions of Contract, as prepared by the R.I.B.A., were then almost complete, and adding the following important statement:—"We are certain that your body will agree with us that it is desirable in such a vital matter that uniformity throughout the Kingdom should be secured. With this view we consider it desirable to hold the matter over until the (R.I.B.A.) amended Conditions have reached us."

You sent us an advanced copy of these Conditions on the 24th October, 1900, for our consideration, and we replied on the 18th December, 1900, that we were ready to go into them with you, but, as there was some delay on the part of the R.I.B.A. in giving these Conditions their final approval, you asked that their consideration should be deferred.

The matter had then so far developed that it appeared to be the desire of all parties that the Conditions finally agreed on should apply to the whole of Ireland. Accordingly, it was taken up by a central committee of the Master Builders' Associations in Ireland, who sent you a set of Conditions based on the R.I.B.A. Conditions, but your Council did not approve of altering the R.I.B.A. Conditions, which had been settled, so the central committee wrote you in May, 1903, that in order "to bring the matter to an end they were satisfied to accept the Form of Contract adopted by the Royal Institute of British Architects, as the recognised Form of Contract for use throughout Ireland."

The adoption of the R.I.B.A. Conditions for the whole of Ireland was, it appears, then recommended by your Council, but for reasons which we will not now deal with, this recommendation was not adhered to, and the matter was referred to a sub-committee of your Council with instructions to draw up a set of Conditions to be used tentatively until some experience of the working of the new R.I.B.A. Conditions would be gained, and while this sub-committee was still pursuing its labours, the new R.I.B.A. Conditions were being used extensively, and were found to work so satisfactorily that we understand you received a communication from the Secretary of the R.I.B.A. in February, 1905, when the Conditions had been almost two years in use, pointing out the desirability of extending their use to Ireland, and thus having a uniform Form of Contract.

The R.I.B.A. would not make such a suggestion if they were not satisfied that it was the proper course to adopt; it would have settled the matter by putting all builders on an equal footing, and it is a matter for sincere regret that their proposal was not adopted.

The Conditions as prepared and recommended by your sub-committee were approved by your Council on the 4th of December, 1905, and sent forward for adoption by your members. Having heard of this, we at once communicated with you on the 11th January, 1906, inquiring if this unusual course had been adopted, to which you replied in the affirmative. We then sent you a strong protest against adopting Conditions on which our views had not been obtained, or our interests in any way considered on a matter of such vital importance to us. You replied to this on the 26th of January, 1906, enclosing a copy of the proposed Conditions of Contract, which had been approved by your Council almost two months previously.

Immediately, on receiving this document, copies were prepared and sent to all members of our committee, and also to the different Associations of Master Builders throughout Ireland (whose representatives with ours had formed the Central Committee), and while these different Associations and ourselves were actively engaged in considering and consulting upon the details of this long and intricate document, which contains many clauses unknown in any approved Conditions at present in use in the United Kingdom, and other clauses so changed that it was a matter of much difficulty to ascertain their meaning and probable effect—we heard to our amazement, and without any warning of any kind having been sent to us, that these Conditions had been approved by your members, and the matter closed.

On inquiring for the reason for this extraordinary procedure, we were informed that sufficient time had been allowed to forward our views, and, as we had not availed of it, the Conditions had been adopted.

Some sixteen weeks had elapsed between the receipt of the copy of the Conditions by us and their final adoption by your members. These Conditions had taken your sub-committee some eighteen months to prepare, and because the different Associations in Ireland could not get reports from their committees (which were in consultation with their legal advisers), and then consult together and lodge their joint views with you in sixteen weeks, your members felt justified in closing the matter without hearing the views of the Master Builders, or informing them of your intention to do so. We feel that this course is not one that will commend itself to your members, many of whom we know are anxious to deal fairly with the Master Builders in this important matter.

In England and Scotland this matter has been differently dealt with; in each case committees were appointed by the Architects and Builders, who met and went clause by clause into the Conditions, sparing no trouble to arrive at equitable Conditions approved by both parties, and, as a result, their conditions have been found to work most satisfactorily.

My committee desire me to add that they would regret exceedingly that the cordial relations which have existed for so long should now be disturbed, and they trust that your Council will yet see the error of endeavouring to force on the Builders Conditions which, for the reasons stated, they are determined to resist.—I remain, yours faithfully,

JOHN GOOD, Hon. Sec.

J. H. Webb, Esq., Hon. Sec.,
Royal Institute of Architects Ireland, Dublin

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CONTENTS.

PAGE

Topical Touches	157
The Old and the New Conditions of Contract	158
A. A. I. Jottings	162
Arklow Harbour	165
Correspondence	166

LEADING ARTICLE:—

The New Conditions of Contract	170
--------------------------------	-----

COMMENTS:—

Engineers and Local Authorities in Ireland	173
The Institute and Registration	174
The Institute of Civil Engineers	174
Building News	176
Our Southern Letter	178
Our Illustrations	178
Engineering Items	181
The Arterial Drainage Commission Report	182
Keyham Docks	185
The Liscannon Quarries	186
Engineering News	186

THE NEW CONDITIONS OF CONTRACT.

Action by the Master Builders' Association.

In our last issue we mentioned that the members of the Master Builders' Association had declined to tender on the new general conditions of contract lately adopted by the Royal Institute of Architects in Ireland, as used in a proposed work for Messrs. Kapp and Peterson, Limited, and we stated that this action created a serious crisis in the relations subsisting between the employers, the architects, and the builders. That we were correct in that statement is proved by the importance the builders attach to the situation. They have sent a case to the Right Hon. J. H. Campbell, K.C., M.P., for an opinion, and a copy thereof has been sent to the Institute of Architects, and is as follows:—

Copy opinion of the Right Hon. James H. Campbell, K.C., M.P., on Form of Contract adopted by the Royal Institute of Architects of Ireland:—

In my opinion the scope and effect of the Form of Contract adopted by the Irish Architects is an outrage upon justice and common-sense. The result of clause 13, paragraph 2, would be to leave the builders at the mercy of the architects upon every conceivable question, including the most serious matters of difficult and complicated law, *except as to the quantities or prices of deviations duly ordered*. In fact, this contract would oust altogether the jurisdiction of His Majesty's Courts of Law, and place querists outside the pale of the law, save in the very exceptional case in which they could prove fraud or misconduct on the part of the architect. Querists should absolutely decline to tender upon this form, and if they are united and loyal to each other, they should soon bring the architects to their senses, and I feel certain that public opinion would endorse their action. The form adopted by the English architects, though stringent in many respects, still leaves to querists the opportunity for redress by arbitration or legal proceedings, and in this respect is in striking con-

trast to the Irish form, which would compel querists to submit to the decision of any architect upon every conceivable question, no matter how unreasonable or arbitrary that decision might be.

If querists were to submit to such a proposal, they would place themselves in a position of servitude such as no other community or interest would ever tolerate.

(Signed) JAMES H. CAMPBELL.

30 Upper Pembroke Street, 23/2/07.

Elsewhere in our columns we publish a letter from a Dublin architect, who frankly states that he writes *as an architect*, but at the same time is willing to open the door to friendly discussion and readjustment of relations. His view is *an architect's* one, but appears to afford a way out of the difficulty. On the other hand, it does not go to the root of the difficulty—namely, the question of principle involved: "Shall the architect be *supreme*, or shall he not?" That point is not settled, or attempted to be settled, by any of the propositions hitherto put forward.

We also publish *in extenso* certain correspondence between the Master Builders' Association and the Institute of Architects.

In the present dispute there are two distinct issues—one, that of the principle just alluded to; the other, that of the draftsmanship or intrinsic merit of the articles of contract in themselves. We have not hesitated to condemn the latter, and we venture to say that had they been drawn on a better legal basis, with more tact and less aggressiveness of tone, the principle of supremacy might have been retained without dispute, and that consequently the present difference would never have arisen. In brief, the breach is due to faulty diplomacy.

From a builder's point of view, the present dispute is only the culminating feature of a state of affairs long regarded as unfair by the builders, and really travels back to the old question of "Should quantities form part of the contract?" The architects have hitherto always declined to agree to that course, and here comes in the difficulty. It is notorious that some surveyors are far from perfect in the mastery of their calling, or occasionally (like other people) make mistakes; but worse than this even, the surveyors, who are perfect masters of their avocation, frequently work upon insufficient information. The drawings are, perhaps, too sketchy, or lack details, and the specification is frequently not written at the time the quantities are taken out. From time to time thereafter these defects and omissions are more or less rectified, but meanwhile the builder has tendered and started work. The inevitable dispute arises, and the builder then argues that it is inequitable that the architect should be final and supreme judge in his own cause, in the first place, and, in the second, judge in the cause of the employer who pays him, and whose purse is at stake, and upon whose patronage he relies for his daily bread. Obviously, no matter what the cause of the defects or shortages may be, it is difficult for the architect to decide that the employer is to pay so much more than he ever anticipated. If the architect is both a strong and a just man he will doubtless, no matter what the result to himself may be, do justice; but occasionally circumstances are too strong for the weak, but well-meaning, men, while the dishonest men have it all their own way, and the contractor suffers correspondingly. The difficulty in 99 per cent. of the cases arises over extras, the architect's

decision on the quality of the work, or the conduct thereof is seldom or never seriously disputed. The extras are the bone of contention, and if it is a sore question with builders, it is emphatically a thankless and troublesome office for an architect to cut down a builder's claim. To put it on no higher grounds, he cuts down his own commission. But we are certain that the most vehement builder will admit that that is usually the last consideration with the average Dublin architect.

The alternative principle of indiscriminate arbitration presents few attractions to either party. Almost invariably the builder gets an increase on the prices allowed, but he more than loses it in costs and in waste of time. The architect loses much time, for which he is seldom or never paid, while the employer loses *hard cash*. That is the usual result. Every one suffers, and no one is pleased. Arbitration, as at present conducted, with two arbitrators and an umpire, is, we hesitate not to say, a hopeless failure, worse than ordinary litigation—in fact, a curse to all concerned except the arbitrators and the expert witnesses. What is the alternative? Many architects demand absolute control, and if they are really strong and conscientious men, that system works well enough, but it is hardly equitable in principle. The other alternative is the nomination in every contract of the President of the Institute of Architects for the time being as sole arbitrator, or, on the other hand, the appointment of an official referee like the official assignee in bankruptcy; and to the latter expedient, we confess, we incline, and we have before now recommended it. The building trade being of the importance that it is, let the architect remain sole judge of materials and workmanship, and let him decide every other question, save that if a dispute arises as to extras or omissions, let the architect and the builder each state a case in writing for the consideration of an official referee, who should hear neither solicitor or counsel, but the principals only, for the purpose of clearing up any point which may to him seem to be in doubt. Such referee should be an architect of good standing and experience, and, in order that he may be absolutely independent, he should be paid an adequate yearly salary, be appointed for life, like a judge, and, of course, should not engage in practice of any kind—in fact, he would occupy a position similar to that of a taxing master. His decisions should be final on all questions of fact, but open to revision by the High Court on all points of law. Such a referee should be constituted an official of the High Court, and, if not, a member of the Bar, as well as being trained as an engineer or architect, should at least possess a general acquaintance with the principles of common law and equity, sufficient to enable him to decide all minor questions without the almost certainty of reversal on appeal, as is the common fate of most architectural arbitrators' awards when challenged. This office need not be a costly sinecure, for, having regard to the average yearly earnings of architects and engineers in Ireland, we believe it could be adequately filled at a cost of five to six hundred pounds a year, a sum which would be more than raised by fees, even on a very low scale, and low they ought to be.

That the adoption of this proposal would not place too much power in the hands of one man is demonstrated by the general satisfaction with which the decisions of the various arbitrators appointed by the

Local Government Board and the Board of Works are met, and in these cases, it must be remembered, enormous questions of compensation for loss of fee-simple interests are day by day dealt with.

To revert to the immediate cause of our comment, the present seems a singularly inopportune time for a falling out between the architects and builders. Business was never so dull, and the number of buildings of any importance at present proceeding in Dublin may be numbered on the fingers of one hand.

In this connection the recent action of the Dublin Stonecutters' Union is of interest:—

The following resolution was, at the last meeting, unanimously adopted:—"That in view of the great want of employment prevailing amongst stonecutters in the city, whereby over sixty men are affected, we hereby call on the Dublin Corporation to decide on having the exterior of the City Hall cleaned and restored."

One of the members present, Mr. O'Looney, in referring to the resolution, said it was one of exceeding importance to the stonecutters in Dublin, as, unfortunately, there was a greater number on the unemployed list at the present time than before Christmas, and the prospects were no better. As regards Messrs. Kapp and Peterson's new premises, tendering for same was now adjourned for an indefinite period, owing to the architects having introduced "a new form of general conditions of contract." While admitting that there may be a necessity for those conditions, from the architects' point of view, and that the master builders believe such conditions of contract are an infringement on their former rights, why should such a controversy apply to this one particular job of Messrs. Kapp and Peterson's, whose express intention it was to have this work tendered for immediately, in order to meet the exigencies of a number of the unemployed in the city?

Mr. P. J. Donnelly (Chairman), in support of the resolution, said he felt sure the Dublin Corporation would respond to their request in view of the bad circumstances attending the great depression of trade amongst their members. The fact of importing such controversies into Messrs. Kapp and Peterson's job, when employment was so bad amongst stonecutters, in his opinion deserved the greatest censure from the public of Dublin.

The Stonecutters clearly dissociate themselves from the dispute, but equally clearly draw attention to the hardship that the dispute occasions to the members of their trade, as well as to all the other building trades, and, above all, the labourers.

Is it too late to hope that a way out of the difficulty may be found by "give and take?"

Mr. Campbell, as our correspondent, "M.R.I.A.I.," points out, falls into a very curious error in supposing Clause No. 13 to introduce a new principle, whereas it is Clause 13 of the old conditions intact, with a difference, of what may be termed punctuation and segregation. In other words, no new principle is involved by the new conditions. Having regard to the previously pleasant character of the relations subsisting between Dublin builders and architects in times past, it seems deplorable that this present difficulty should arise.

COMMENTS.

Engineers and Local Authorities in Ireland.

The County Surveyorship of County Meath will shortly be open for competition, the present Surveyor, Mr. Moore, having resigned his office some time ago, as already noted in our columns. It may be remarked, in passing, that none but candidates possessing considerable local influence, political or personal, have the slightest chance of being appointed to a County Surveyorship under the existing system. Of course, the person appointed has to satisfy the proper authorities of his competency for the office, but as skill and merit are about the last things taken into consideration by the appointing authority, it seems strange that the

Engineering profession and the Institution in Ireland have not long since started an agitation to restore the old system of competitive examination under which such a splendid service was constituted, and one which contained so many brilliant men in its ranks. It is unquestionable that the present system, which is one wholly based on canvassing, secures, not the best engineers, but those who can boast of the best "wire-pullers" amongst their supporters. The present system is eminently unsatisfactory, has lowered the dignity of the office, and the status of the profession in the country, and there can be little doubt but that if the protest were only loud and long sustained, the Government would be compelled to restore the old system, or some modification thereof. As worked at present, the fact of being able to speak Irish, to be a native of the district or related to inhabitants thereof, or to be a supporter of the dominant party on the Council, are all mentioned as high qualifications for the post of County Surveyor.

We are not urging any blind worship of the fetish of "open competition," undeniably responsible as it was for securing such excellent results in the past. We freely admit that—granted the candidate is properly educated professionally—there may be better methods of securing the most practical and capable men. Very often it happens that the men who are cleverest at passing examinations are wanting in practical ability; but other than by competitive examination, we at present fail to see how the best men are to be identified. The Councils palpably make no attempt to enquire into a candidate's qualifications, whether such take the form of University degrees, practical skill and experience, as shown by a record of work successfully done, or any other tangible credential; and there is no guarantee that the most unsuitable of all the candidates is not selected; in fact, were it not for the restriction that fortunately still exists in the shape of a qualifying examination, we have not the smallest doubt but that many of the Councils would elect wholly unqualified, inexperienced, and ignorant men, just as the District Councils frequently do, many of whose so-called "architects" or "engineers" have about as much right to so describe themselves as they have to call themselves "Admirals of the Fleet." In this connection we shall be curious to observe the attitude of the Local Government Board, when certain recent appointments come before them for ratification—whether they will stand by the spirit of their own regulations prescribing qualifications, which unfortunately are, however, of a somewhat elastic nature; or whether these rules will be suffered to become a sham. If the Local Government Board decide upon standing to their guns, we fear they are in for a fight with many of the Councils. On the other hand, if they cave in at once, they stand stultified.

While on the subject of the County Surveyors, we may say that many of the recent appointments have carried an entirely insufficient salary, having regard to the importance of the office, and the expenses of car-hire, etc., attaching to it. Adequate remuneration should be insisted upon by Government. We feel sure that if the two points of restoring free competition on the basis of merit alone, in some shape or form, and the payment of a proper salary were forcibly put before the Irish members, neither they nor the Government could resist the fairness of the proposition.

Yet another point is the very insecure tenure of engineers holding minor appointments under local Councils, such as Architects under the Labourers Acts, Town Surveyors, and so on. These men are absolutely at the mercy of the Councillors, and if so unfortunate as to offend some of the members, lay up a terrible store of trouble for themselves. If they are poor men with families, and devote themselves wholly, or almost wholly, to the duties of their office, the situation becomes a most serious one. The other day, in Bray, the Town Surveyor, Mr. Sutter, applied for an increase of salary. Having evidently offended someone, a

resolution abolishing his office was moved and carried, despite the vigorous protests of a strong minority, and without a moment's notice Mr. Sutter was dismissed! Such a state of affairs is a scandal. We have no knowledge of the manner in which Mr. Sutter discharged his duties, but we take it that no serious complaint has ever been made against him.

This is another case in which the Institution might well intervene and make a protest. We assume that it is hardly likely, under the circumstances, any engineer or architect will accept Mr. Sutter's post, or that of "Consulting Engineer," which is the style of the new office proposed.

We trust it is not necessary for the Institution to point out their duty to members, still a reminder may not come amiss; and were any member so mean as to take Mr. Sutter's position, some question would, doubtless, arise as to the continuance of his membership. We hold no brief for Mr. Sutter, who we believe, indeed, is a stranger amongst us in Ireland. We simply speak from the standpoint of the dignity of the profession.

The Institute and Registration.

The Royal Institute of British Architects has issued to its members a circular letter marked "private and confidential," dealing with the subject of statutory registration of architects. On that account we are debarred from further remarking upon it.

The Institution and Civil Engineers.

Hardly a year ago the Institution of Civil Engineers in Ireland determined, after long debate and much anxious consideration, that an hon. secretary, aided by an official designated as "clerk," could no longer be regarded as sufficient machinery for working the Institution, and it was determined to appoint a paid secretary. The services of the then clerk, who had performed his duties to everyone's satisfaction, though he only devoted a modicum of his time to the duties of the office, were automatically dispensed with by the abolition of his office. A paid secretary to the Institution was duly appointed, and has filled the post up to the present; but now a notice of motion has been handed in to create a new office, the holder of which is to be styled "Clerk of Council." The reasons for this proposed change are not very obvious—in fact, it looks like a change for the sake of a change.

❖❖❖

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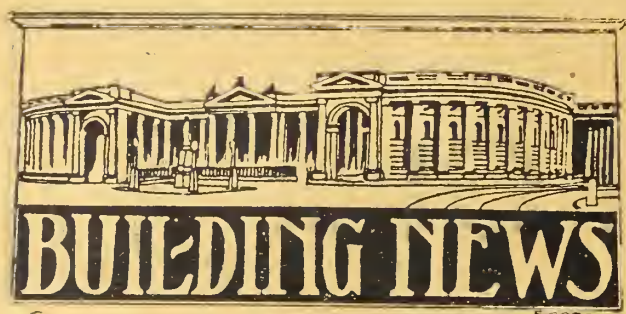
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Armagh.—There has just been completed a new wing to St. Patrick's College, Armagh, from the designs of Messrs. Ashlin and Coleman, Dublin. The new wing contains study hall and lecture theatre, with dormitories over. The cost was £3,000, and the builders were Messrs. M'Adorey, of Dundalk.

Arklow.—Sir Thomas Esmonde has received the satisfactory information from the Government that they will contribute £14,000 towards the works for the improvement of Arklow Harbour, and that a further sum of about £4,000 will be contributed by the Agricultural Board, Messrs. Kynoch and others concerned in the commerce of the town. It is not proposed to lengthen the pier, but to improve the interior of the harbour and dredge the river. Messrs. Kynoch expressed their intention of carrying out an extension of their business if these works were effected.

Belfast.—Additions are being built to the offices of the National Telephone Company, Ltd., Upper Queen Street, Belfast. The plans and specifications have been prepared by Mr. Thomas Manley Deane, B.A., A.R.H.A., 15 Ely Place, Dublin. The contract has been entrusted to Messrs. Lowry and Perry, Belfast.

The minutes of the special meeting of the Belfast Corporation contained the following:—"The Lord Mayor presided over two conferences which had been held between representatives of the Forster Green Hospital and the Public Health Committee with a view to bringing about an arrangement for the treatment of a number of patients, say 25, to be nominated by the Public Health Committee, in the Forster Green Hospital, and the representatives had discussed the question at considerable length. If the hospital authorities came to an arrangement such as proposed, it would necessitate the erection of additional buildings and the rearrangement of their existing buildings. The Lord Mayor explained that it would be necessary for the committee to tabulate their proposals, and submit them to the hospital authorities, and, if agreed to, plans and estimates for the necessary buildings would be obtained by the governors, and submitted to the committee for their approval. His Lordship suggested that the proposals should be reduced to writing, and supplied to each member of the Public Health Committee, in order that they might be discussed at the ordinary meeting, and this was approved. The Chairman intimated that it was roughly estimated that the proposed structural alterations would cost from £1,200 to £1,400; accommodation would be provided for twenty-five patients, the Corporation to have the option at the termination of the period of renewing the agreement on similar terms or removing the buildings, and similarly at the termination of each period." It was unanimously resolved:—"That we ask the Governors of the Forster Green Hospital, provided they are prepared, to favourably consider the committee's proposals to submit plans and estimates for the erection of the necessary buildings for the consideration of the committee."

Bray.—The Urban Council invite tenders for supply of certain stores for twelve months from 1st April, 1907, including cement, sewer pipes, bricks, lime, paint, oil, ironmongery, etc., and sundry articles more particularly described in schedule, which will be forwarded on application. Tenders close on March 19th.

Belgooly.—Tenders are invited for the building of a parish church and presbytery at Belgooly, Diocese of Cork. Mr. M. A. Hennessy, M.R.I.A.I., F.S.L.A., is the architect. Particulars will be found in our advertising columns.

Co. Meath.—Mr. Delaney, Navan, has secured the contract for building additions to the Convent of Mercy. The plans and specifications were prepared by Mr. T. F. M'Namara, 50 Dawson Street, Dublin. Mr. D. W. Morris, 68 Harcourt Street, was the quantity surveyor.

Clonmel.—The District Lunatic Asylum invite tenders for the erection of a gate lodge on the Asylum premises. Plan and specification can be seen at the Boardroom. Tenders to be lodged on the 12th inst.

The Joint Committee of Management of the Clonmel District Lunatic Asylum have applied to the Local Government Board for Ireland for their consent to the borrowing of £2,700 for the purpose of erecting two blocks of buildings for consumptive patients.

Co. Kildare.—Plans are in course of preparation by Mr. L. A. M'Donnell, 9 Hume St., for additions to Dollans town, Kilcock, for Mr. P. Purcell-Gilpin.

Co. Antrim.—The Coleraine Urban District Council invite tenders for additional water supply to Portstewart and extension of waterworks, consisting of (1) making a reservoir and laying additional water mains; (2) supplying two oil engines and the necessary pumping machinery in connection with the additional water supply for the town of Portstewart. The plans and specifications have been prepared by Messrs. W. J. and M. Given, engineers, Diamond Coleraine, and tenders close March 16th.

Drumglass.—The estimated cost of the new schools, proposed to be erected in Park Road for the parishioners of Drumglass, is £2,000. The architect is Mr. W. J. Fennell, M.R.I.A., Belfast.

Drogheda.—The Urban Council have in contemplation the erection on the south side of the Boyne a large number of artisans' dwellings.

Dublin.—The annual general meeting of the Corporation of the Royal Victoria Eye and Ear Hospital was held at the Hospital, Adelaide-road. The Right Hon. Mr. Justice Andrews (vice-president) presided. During the past year the Council have had under consideration the erection of the new out-patient department. In this connection the Council express the hope that the public will aid them with their contributions, so that this work may be carried out without involving the hospital in debt, and for this a further sum of at least £8,000 will be required. The Council hope at the same time to construct a laundry, which is nowadays a necessity in a hospital of any size.

Tenders are invited for building two villas at Foxrock, Co. Dublin, for Mr. H. G. Simpson, in accordance with plans and specifications prepared by Mr. J. J. Inglis, C.E., 18 Nassau Street, Dublin, which can be seen at his office.

The Pembroke Urban District Council have instructed Mr. Edwin Bradbury, M.R.I.A.I., 8 and 9 Nassau-street, Dublin, to prepare plans for a keeper's cottage at Ringsend Park, and tenders will shortly be invited.

Mr. Wm. Harbrow, South Bermondsey Station, London, S.E., is erecting a new portable galvanised building for the Irish Labour Home and Yard, Ringsend. Mr. Sterling, Clare Street, Dublin, is the architect.

New aisles and porches are being constructed in St. Mary's R.C. Church, Haddington Road, by Mr. Jas. Kieran, contractor, Talbot Street. The plans and specifications are by Messrs. W. H. Byrne and Son, Suffolk Street, Dublin. Mr. D. W. Morris, 68 Harcourt Street, was the quantity surveyor.

The Irish Lights Board are negotiating with the landowner for a site on Haven Island, Skerries, with a view to erecting four houses for the light-keepers.

The memorial arch, which is being erected at the entrance to St. Stephen's Green to the officers and men of the Royal Dublin Fusiliers who fell in South Africa, has been commenced. Messrs. Laverty and Sons, Ltd., are the contractors for the work.

The licensed premises, 32 Lower Mount Street, are being re-built for Messrs. Nolan, according to the designs and specifications of Mr. L. A. M'Donnell, M.R.I.A.I., 9 Hume Street, Dublin. Messrs. H. and J. Martin, Grand Canal Street, are the contractors. The shop front will be of limestone.

Mr. M. Glynn, North Brunswick Street, Dublin, is at present altering and improving the premises at the corner of North Earl Street and Marlborough Street. Mr. Scott, we understand, has in hands the shop fittings.

The Dublin Corporation are at present erecting new artisans' dwellings in Townsend Street, according to the designs of the City Architect. Mr. W. H. Beardwood, 192 Great Brunswick Street, is the surveyor. Mr. Egan, Williamstown, Blackrock, is the contractor.

Plans are at present in course of preparation by Mr. L. A. M'Donnell, Hume Street, for the following work:—New schools for the Convent of the Sacred Heart, Lower Leeson Street; the re-building of No. 2 Chatham Street for Messrs. Lawson and Powell.

Dalkey.—Mr. J. Delaney, contractor, Kingstown, is at present erecting a two-storey shop in Castle Street, Dalkey. Messrs. Kells and Sons, contractors, Monkstown, are at present finishing a row of new shops in Lr. George's Street, Kingstown.

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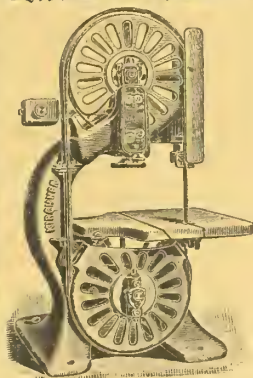
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THE MANAGER.

Kingstown.—Proposed New Dispensary for Kingstown.—Mr. Thomas Clarke, J.P. (Chairman), presided at a meeting of the Rathdown Board of Guardians. Mr. Kennedy gave notice that he would move:—"That in the opinion of this Board the accommodation provided for poor patients and the doctors attending the Kingstown dispensaries is totally inadequate for the requirements of such a large and populous district. It is therefore resolved that it is desirable that a properly constructed dispensary, with a caretaker's residence (the relieving officer should act as such), be erected in a suitable and convenient position for the service of the two dispensary sub-districts, Kingstown Nos. 1 and 2; and with this object in view the proposer and seconder of this resolution, with the chairman of the Board, be a committee to make inquiry concerning a suitable site, and report fully to the end on the matter."

Limerick.—The speculation on the site for the new Technical Institute, over which much debate has occurred, is now coming into practical shape. Tenders were invited some time ago, and were considered on the 25th ult. None of the sites offered were considered suitable, and it is likely that the new building will be erected in the People's Park.

Monaghan.—The building trade throughout the entire county of Monaghan is certain to receive a great impetus this season by reason of the very large number of labourers' cottages that are to be built. The schemes in the various Unions (four in number) will be put in force immediately the necessary preliminaries are complied with. By far a larger number of representations have been received this year than ever before.

Tipperary.—The Board of Guardians are about to erect a medical officer's residence and dispensary for the Golden district. It has been decided to apply for the loan of £1,000 to carry on the works.

Youghal.—Tenders were received for building stores and other work for Mr. T. W. Paisley, Youghal. The architect is Mr. Arthur Hill, B.E., F.R.I.B.A., 22 George's-street, Cork.

ARCHITECTS UNDER THE LABOURERS' ACTS.

The following Rural and District Councils advertised for architects under the Labourers' Acts, 1906, the date of application being given in brackets:—Mill Street (14th March), Trillick (9th March), Dunshaughlin (12th March).

The following Councils have appointed the gentlemen named:—Killarney, Mr. Gallivan; Waterford No. 2, Mr. J. Lawlor, assistant county surveyor, Clonmel (4/6 per plot and 1½ per cent. on building outlay); Gortnahoe, Mr. James Delany, Lurgoe, Killenaule (10/- per cottage and 2½ per cent.); Enniskillen, Mr. W. Scott, Enniskillen, (3/- per cottage and £2 15s. for each cottage built); Kilmacthomas, Mr. J. H. Jephson, Waterford (4/- per plot and 1½ per cent. on work); Monaghan, Mr. P. O'Neill, Monaghan; Tubbercurry, Mr. J. P. O'Dowd, Chaffpool (7/6 and 2½ per cent.); Castlerea, Mr. Lavin (30/- per cottage); Carrickmacross, Mr. P. Duffy (1½ per cent. on all cottages and 7/6 for maps).

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Holy Cross Abbey, Thurles.

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Many years ago Mr. Samuel Close, of Belfast, published a fine set of measured drawings of the Abbey.

OUR SOUTHERN LETTER.

(FROM OUR CORRESPONDENT).

Waterworks, Etc.

The Clonakilty Urban District Council have under consideration a report received from Mr. Richard Evans, C.E., Cork, in which he deals with a scheme for increasing the water supply to the town. He proposes to bring the water from Gullane Lake, and also to lap the springs at Scartagh, raising the surface level of the lake by means of a dam, and forming an intake chamber from lake to supply main.

Filter beds would have to be formed near the lake, and the supply main laid along next the railway.

Collecting tanks would have to be formed at the springs at Scartagh, and a branch main connected with the Gullane supply. The main supply would be taken to a service tank near the town, which should be capable of containing about 60,000 gallons. Both these supplies are considered ample for the requirements of the town, and also for the convent.

The population of the town is 3,000, and the average quantity of water required would be 90,000 gallons per day.

The estimated cost of the works amounts to the sum of £2,000.

The Cork Rural District Council have received a reply from the Local Government Board in connection with the enquiry recently held for the purpose of considering their application for the sanction to a loan of £5,600 for the purpose of carrying out a sewerage scheme for the Lough district. The Local Government Board, in their reply, informed the Council that they considered the site of the contact beds unsuitable, and recommended the Council to submit an amended scheme, and advised them to obtain the advice of an engineer of experience in carrying out main drainage works, who would discuss the whole question with their present consulting engineer.

The reason for this decision was that the contact beds of the filtration works in the proposed scheme would be about seven feet below the flood level of the river adjoining, and although it was intended to erect a retaining wall adjoining the river, the Local Government Board could not give the sanction to this part of the scheme.

The Local Government Board have approved of the Council's application for the sum of £40,290 for the erection of 169 labourers' cottages in the district, and have passed the first instalment, amounting to £10,000, for this purpose.

The Youghal Urban District Council, having received four tenders in reply to their advertisement for the construction of the sewer for the Youghal Auxiliary Asylum, which tenders varied from £1,165 to £769, they unanimously accepted the lowest tender, which was sent in by Mr. Patrick Kenneally, of Youghal.

General.

The Limerick Corporation have received an offer from Mr. Patrick Dillon, contractor, offering to block-pave 100,000 square yards, which include all the principal thoroughfares of the city, for the sum of £7,500, and to keep them clean and repair them for 40 years. The cleansing and repairing of the streets cost £7,024 for the year 1906.

The Bantry Town Commissioners have received an offer from the Alliance Electrical Company, Dublin, to prepare free of charge a scheme of electrical lighting for the town, and to submit it, together with the estimate of cost and probable revenue, for the Commissioners' consideration. The company would not finance the undertaking, and suggest that a local company be formed for the purpose in the event of the scheme being approved of.

The Cork County Council have decided to carry out sundry works connected with the alterations of the Council Chamber and the re-arrangement of the County Offices in the Cork Courthouse, as it was found that the present Council Chamber was inconvenient both to the members of the Council, the Press, and the public, the acoustic properties of the Chamber being faulty. The county surveyors and Mr. William H. Hill, architect, prepared plans for the alterations, which are estimated to cost about £750.

The County Council have also decided to expend the sum of £500 in constructing a boat slip at Tranadough, near Toe Head, in the Skibbereen district, the Congested Districts Board guaranteeing £250 towards the expenditure.

The Tralee Urban District Council have decided to join with Limerick and Clare with a view of providing a sanatorium for the treatment of consumptive patients.

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Messrs. T. F. Slevin and Son have removed their offices from Dame Street to 8 Leinster Street.

ENGINEERING SECTION.

ITEMS.

The Bank of England authorities have solved the problem of water supply by boring an artesian well on their premises. The tube, which is 10 inches in diameter, was sunk to a depth of 400 feet, when springs were tapped yielding a minimum supply of 150,000 gallons per day, which can be pumped up at the rate of 6,300 gallons per hour.

* * * *

Mr. A. Sayers, the well-known lecturer on Plumbing at the Municipal Technical Institute, Belfast, has recently been experimenting on various types of hot-water apparatus, which have been fitted for his use by the students. The experiments have been carefully made, and the conclusions arrived at should prove useful to the plumber, the engineer, and the architect. The disadvantage of most systems is that the pipes on the upper floors are full of cold water, which has to be drawn off before the hot water reaches the taps. The arrangement which Mr. Sayers found to give the best result was one in which the primary flow from the boiler was connected to the expansion pipe, immediately above the cylinder, while the primary return was taken from near the bottom of the cylinder to the boiler. The cold water supply entered the cylinder a short distance above the bottom, the end of the pipe being turned downwards in order to spread the incoming cold water by contact with the bottom.

* * * *

In secondary circulations the most satisfactory system was one in which the primary flow and return were connected as before described, while the secondary flow, 1 inch in diameter, was taken off the expansion pipe, and, after passing the draw-off taps, was reduced to $\frac{3}{4}$ inch diameter being returned, not to the cylinder, but to the bottom of the boiler. While this system has been proved by Mr. Sayers to be more efficient than that to which hot-water engineers are accustomed, providing a more copious and constant supply of hot water, yet we consider additional connections to the boiler are undesirable, as they may afford, under certain circumstances, an element of weakness in the system.

* * * *

As the Calais-Dover tunnel scheme is gradually falling in public esteem, and its prospects are becoming less rosy, the alternative proposal of a Channel ferry is being taken up, certainly with more possibility of success. Such ferries are in common use for longer distances, both on the Continent and in America. There is one which crosses an arm of the Baltic between the German mainland and Denmark, a distance of 26 miles. Across Chesapeake Bay, from Cape Charles to Norfolk, there is a ferry 36 miles in length, and another is in operation across Lake Michigan, for a distance of 90 miles. A cross-Channel ferry would cost only one million pounds, as compared with some sixteen millions for the tunnel, and could be in operation within three years. Moreover, the dangers which military and naval experts apprehend from the construction of a tunnel would not arise in the case of a ferry, and thus the chief opposition would be done away with. With regard to goods' traffic, a ferry would be as useful as a tunnel, the trains being run direct on board the vessel, and the cost of double loading and unloading would be avoided. The public would not receive such advantage under the former scheme, as a sea passage would still be necessary, but the ferry boats are designed elsewhere to minimise rolling, their size and weight rendering them immune to all but the severest storms. A similar ferry is proposed between England and Ireland in connection with the new Express Route to

Canada, and certainly it would be desirable to experiment with the less expensive scheme before sinking millions of capital below the ocean bed.

* * * *

Motoring having become the relaxation of the many, a new danger has arisen to which sanitary authorities will have to turn their attention. In examining the drains of a combined stable and motor-house an explosion recently occurred owing to the chauffeur having allowed some petrol to pass into the drains. As the number of cars increase it will become necessary to prevent the discharge of petrol into the drains, as even a small quantity would cause an extremely dangerous condition of affairs to arise in the main sewers. The London County Council has already recognised the seriousness of the matter, and has drawn attention to the penalty clauses under which action will be taken against persons discharging petrol into sewers.

* * * *

Having regard to the present high price of Jarrah wood blocks, the question of their suitability, on the score of economy, as a paving material is one that is exercising the minds of city engineers. Mr. Blair, having made enquiries from other Borough Surveyors as to their opinion, has recently reported to the St. Pancras Borough Council that the life of Jarrah is 50 per cent. longer than that of creosoted deal. This, however, represents the relative difference in primary cost of the two materials, but the subsequent maintenance charge for deal pavement is far heavier than for the hard wood. It is, of course, very difficult to obtain accurate statistics on the subject of comparative durability, for so much depends on the amount of the traffic, its character and speed, and the class of buildings abutting on the thoroughfare. For example, if the streets are lined with warehouses, the sides of the road are constantly occupied by stationary lorries, consequently the through traffic is centralised, and the crown of the road is subject to more wear and tear than the remainder. It is, therefore, not very astonishing to discover that the probable life of creosoted deal is given as varying from five to eighteen years, and the annual cost of maintenance as from 9d. up to 1s. per yard. Opinion as to the value of creosoting differs widely, the consensus being in favour of the process where light traffic is concerned, but not otherwise. The explanation is that where the life of the road depends solely on traffic wear, the creosote effects little or no additional resistance, but where traffic is light and the life of the road is determined by the decay of the wood, then creosoting does prolong its efficiency. There is an unfortunate disadvantage to creosoting in that during the first year or two there is an appreciable exudation of oil, causing a somewhat slippery surface. The odour is also unpleasant to many, and has been considered injurious to vegetation. The advantage of soft wood paving is its more even wear and its comparative silence under traffic. Apart from the question of initial and subsequent cost, which differ widely in various localities, and which can be readily determined by the engineer of experience, the following may be taken as a summary of the conditions of the two timbers:—

Jarrah: Easily cleansed, very durable, good foothold, eventually becomes noisy through wear of edges of blocks.

Creosoted Deal: Holds the dirt, becomes greasy, less secure foothold, takes frost readily, wears evenly, but quickly; more silent under traffic, exudes an oily film of unpleasant odour.

The opinion of the motor bus companies is all in favour of the hard wood, and, having regard to the rapidly increasing motor traction, such opinion is entitled to great weight.

THE ARTERIAL DRAINAGE COMMISSION REPORT.

The Arterial Drainage Commission, appointed by Lord Dudley in 1905, and which sat first on Oct. 11th of that year, has recently concluded its inquiry, and submitted its report to the Government after thirty-five sittings and various inspections throughout the country.

The existing drainage system is full of anomalies, and, from time to time, loud public outcry has been made for its reform in order to relieve the flooded areas and open up land at present wholly or partially unremunerative. The Acts of 1842 and 1863 have not proved successful in their working, and the Commission was appointed to inquire into the defects of the Acts and to suggest such amendments in law as may facilitate the initiation, execution, and maintenance of arterial drainage works.

At the time of writing the whole report is not public property, but sufficient information has leaked out to enable the general recommendations of the Commission to be determined. One unique feature will commend itself to all, the report is apparently unanimous, in contradistinction to the findings of other recent Commissions, in which a multitude of minority reports tends to confuse the mind and detract from the utility of the proceedings. In the Drainage Commission report the Commissioners have sunk minor points of difference for the general good, and the report has been so carefully drafted that all could sign without adding individual riders.

The first definite declaration in the report is that a drainage department is essential to properly regulate the proceedings of the subordinate drainage authorities throughout the country. One can imagine the surprise with which a proposal to create yet another board will be received, and it is indicative that even under present auspices further general control is necessary. The report does not define the composition of such Board, wisely, we think, having regard to the devolution proposals shortly to be laid before Parliament, but suggests, preferably, that in lieu of a distinct Department, a branch of an existing Department should be created to secure as far as possible uniformity of treatment of drainage problems. The only two Departments to which such proposals can point are the Board of Works and the Board of Agriculture, and, owing to the engineering technicalities and requirements of the case, it is probably the former body which would be the better fitted to take over control. At the same time, a distinct Department has its advantages, it stands or falls by its one set of duties and responsibilities, and public criticism can more readily be applied. The new authority should be available to give expert advice to responsible bodies, should approve loans, and be the treasurer for State aid to assist in drainage schemes. This Department should further have the power of defining the various catchment areas in Ireland, classifying them into major and minor watersheds, for which different methods of control are suggested.

In the next place, the Commissioners recommend the creation of Conservancy Boards for the larger or "major" watersheds, which should have charge of the main outfall works and exercise control over subordinate Drainage Committees in their area. These major watersheds are some fourteen in number, including the waterlogged areas of the Barrow, Bann, Shannon, Erne, and Corrib. The interest to be represented on the Conservancy Boards are the County Councils, the benefited lands, towns, navigation, waterpower, and fisheries. The County Councils are to have the dominant voice, their nominees representing two-thirds the total membership of the Board. The benefited lands will be represented by nominees of the Drainage Committees elected under certain specified conditions, while the representatives of the other interests are merely nominal, and are included in order to grant an opportunity of stating their views on matters of policy, and of making their wishes and objections known at an early stage of the proceedings.

In the third place, Drainage Committees are recommended to be appointed to control districts under the Conservancy Boards, in the major watersheds, and to directly control minor watersheds. These committees will be also subject to the County Councils.

So far, the report deals with distribution of authority and the duties of the various new Boards and Committees, but no definite information is yet forthcoming as to the financing of the schemes which will be promoted. State aid will be required to deal with the outfalls of the rivers, which will of necessity have to be cleared to drain the tributaries properly and profitably. The remainder of the charge will probably be found to be rightly allotted to the benefited lands in the form of a rate, which could, if necessary, be collected with the poor rate. The flooded areas would naturally have to be valued before and after drainage, and such duties would probably devolve on the Land Commission, and may prove a very thankless task, as, once the drainage is effected and the land reclaimed, the tenants' inclination to pay an increased rate will not, in accordance with human nature, be in full proportion to the benefits received.

Amongst other notable features of the report, we observe that the Drainage Department should have power to make loans under exceptional circumstances to drainage bodies, the maintenance will devolve on the Conservancy Boards.

If subsequent to the completion of the drainage works and the making of the final award of liability, other persons not charged under the award take advantage of the improved outfall, the County Council should have power to call on the Drainage Department to make an order fixing a proportionate liability of the beneficiaries to contribute to the capital charge and the maintenance rate.

Power should be given to the Conservancy Boards to prosecute any person erecting unauthorised dams, weirs, or obstructions to outfall works, while for similar offences as regards works under the care of Drainage Committees, the power to prosecute should rest with the County Council, and it is recommended that the Drainage Act should specify minimum penalties on conviction.

If any Conservancy Board or County Council prove unwilling to discharge the functions imposed upon them by a new Drainage Act, the aggrieved parties are to have power to petition the Drainage Department for redress, necessary disciplinary powers being granted to the Department.

Towns which derive benefit from arterial drainage works, either by relief from flooding or by obtaining an improved outfall for sewerage works, are to contribute to the cost and maintenance of the scheme.

We have now, in the brief space at our disposal, dealt with the main points of the report, and on the whole it certainly appears that the Commissioners have given careful consideration to the difficult problem before them. At first sight, the machinery appears somewhat cumbersome, and a Drainage Act will need careful drafting to prevent friction, and to deal successfully with the financial aspects of the question, if the benefited lands and other interests are to fully and regularly pay their contribution to the execution and subsequent maintenance of the schemes. The Drainage Committees are apparently to owe a dual allegiance to the County Councils and the Conservancy Boards, and it is to be hoped such responsibilities will be clearly defined, as herein lies a source of difficulty and danger. However, in the case of a conflict of opinion between a County Council and a Conservancy Board, the decision of the Drainage Department is to be final. It is doubtless round this new Department that public criticism will centre. It is invested with powers of an autocratic character; it is to be arbitrator, financial and technical adviser, disburser of State aid, and, in the case of recalcitrant subordinate bodies, it is not to spare the rod. Indeed it will hold the same position towards the drainage of Ireland that the Board of Agriculture holds towards agricultural development, and the latter may well look to its laurels, as "The" Department. While dealing in detail with the constitution of the Conservancy Boards and Drainage Committees, the Commission has, as stated, observed the golden rule of silence with regard to that of the Drainage Department, and it is presumably left to the Act to make it a Crown or a popularly elected Board. At all events, the Commis-

sion is to be congratulated on bringing its enquiry to a definite issue. It has not, by its very nature, attracted a public attention like the semi-political Recess Committee, or the fully reported partisan opinions expressed at the present sitting Railway Commission, but hard work has been accomplished, and a bold effort made to devise a scheme for the betterment of the country. With knowledge of the deplorable conditions existing in the Barrow and Bann districts, in Co. Cavan, and parts of Co. Mayo, we heartily join in the Commissioners' preliminary statement, that early legislation on the subject of arterial drainage in Ireland is necessary. The initiation of new drainage work in Ireland is entirely at a standstill, and with the extension of land purchase, the difficulties are bound to become more and more acute. Perhaps the Commissioners' concluding paragraph shows more clearly the proper spirit in which the question has been considered. "In dealing with this complex and difficult problem, we have framed our proposals to meet the following tests:—Will they enable new drainage districts to be formed in a simple and economical manner? Will they meet the after-needs of all districts existing and to be formed, large and small? Will they provide for the security and repayment of the Government loan, for the accurate determination of the increased value of the improved lands, and for the expeditious acquisition of land and water rights? And the answer to each of these questions will, we venture to hope, be found in the affirmative." If such hopes be realised, the Commission will, indeed, be entitled to the gratitude of the Irish farmer."

KEYHAM DOCKS.

Keyham Docks, at Devonport, which were opened by the Prince and Princess of Wales, were designed by Sir Henry Pilkington, K.C.B., Civil Engineer-in-Chief to the Admiralty, under the Works Loan Act (1895), Mr. Charles Colson, C.B., being the Deputy Civil Engineer-in-Chief, and Mr. Whately Eliot, M.Inst.C.E., being the Resident Superintending Engineer for the Admiralty.

This great national undertaking has transformed Devonport into probably the most important war depot in the British Empire. The project is the greatest dock scheme ever undertaken at one time, and the contract is the largest of its kind ever entrusted to one contractor. The plan included a scheme of reclamation of about 80 acres of the foreshore of the river, and the utilisation of about 40 acres of the adjoining land, and on this a series of basins and docks have been constructed, the later the largest in the world. To accomplish this the contractors had an army of something over 3,500 workmen, together with a very large and valuable plant, comprising steam navvies, over 200 boilers, overhead steam and electric cableways, some 25 or 30 locomotives, cranes, winding engines, and wagons almost innumerable, together with floating plant for taking material to sea, of an estimated value of something like £150,000.

The first portion of the work to be taken in hand was the construction of a timber coffer-dam, about a mile and three-quarters in length, the large baulks of timber for which were specially imported from the forests of British Columbia, and ranged from 65 to 90 feet in length. This coffer-dam contained something like two million cubic feet of timber. Sluices were constructed in the coffer-dam, and during its construction the water was allowed to rise on both sides until the whole was completed. The water was then allowed to flow out through the sluices from inside the coffer-dam to the level of low water of neap tides, when the sluices were closed excluding all further water, and the water remaining inside the dam was pumped out. With the completion of the works the whole of the piles of this coffer-dam have, of course, been removed.

The works consist of a tidal basin, a deep water on-entrance lock, three large graving docks, and a large closed basin. The dimensions are as follows:—

	Tidal basin 10 acres, with a depth of 55 feet.		
	Closed basin 35½ acres, with a depth of 55 feet six inches.		
	Breadth at Depth below.		
	Length.	Entrance.	Coping.
Deep water entrance lock ...	730ft.	95ft.	58' 6"
Graving dock ...	745ft.	95ft.	48' 0"
" ...	741ft.	95ft.	59' 6"
" ...	660ft.	95ft.	48' 0"

When the works were started the last-mentioned dock was only designed for a length of 480 feet, but the Admiralty thought it expedient to increase the length of this dock to 660 feet. Negotiations were entered into with Sir John Jackson, Limited, for this subsidiary work, and a contract was entered into in July, 1906, the time for completion being fixed at eight months. Such energy, however, was displayed by the contractors in the execution of this work that the whole was completed in the record time of five months, or a little more than half the contract time. The Lords Commissioners of the Admiralty specially conveyed to Sir John Jackson their satisfaction at the rapid way in which the work had been carried out.

The basins and docks are bounded on the river side by a quay wall 4,700 feet in length, with a breadth at the base varying from 30 to 40 feet, the foundations in some places attaining the great depth of 120 feet.

Considerable engineering difficulties have had to be overcome, the 80 acres of the foreshore consisting of deep mud, running in many places to a depth of over 110 feet. In consequence of this it was found impracticable to build this wall as originally designed in a trench. Resort was had to the sinking of concrete columns, constructed in segments, the bottom segment being formed with a cutting edge. They were then sunk side by side through the mud (until they reached the rock) to a depth in many cases of over 100 feet. The superstructure, consisting of concrete faced with granite blocks, was afterwards built up on these columns.

It is probable that more granite has been used in these works than in any other undertaking, something like three million cubic feet having been utilised; and when it is stated that about ten million tons of excavation have been removed to sea, exclusive of any dredging, some faint idea may be obtained of the magnitude of the work.

The contract for this colossal undertaking, which will cost some four and a half millions sterling, and which has taken over ten years to construct, was placed in the hands of Sir John Jackson, whose business is now carried on under the style of Sir John Jackson, Limited.

Flexible Metallic Tubing.—We have received an interesting catalogue, dealing with this speciality, from the United Flexible Metallic Tubing Company, Limited, 12 Queen Victoria Street, E.C., London. Flexible Metallic Tubing is an important invention, which furnishes manufacturers with a reliable and practically indestructible substitute for rubber hose, capable of carrying steam at all pressures, even in special cases, up to 300 lbs. per square inch. It can also be used with advantage for oils, gas, compressed air, and hydraulic purposes, and it is admirably adapted for junction-pipes and for engineering work of every description. Unlike rubber, this tubing is unaffected by heat or cold, and remains flexible at all temperatures. It will stand exposure to any kind of weather, and to every variety of climate, and is not liable to break or crush. So varied are its uses that it would be impossible for us here to indicate a tithe of the purposes to which it has been successfully applied. We must, therefore, refer our readers to the catalogue in question. The catalogue deals with Flexible Metallic Tubing, as applied to steam, hydraulics (oil, water, etc.) gas and laundries. The great strength of this tubing, which has been found to be uninjured after cart wheels have passed over it, points to its use for temporary purposes by contractors, builders and others, and we, therefore, recommend it to the notice of our readers, who can obtain full information, prices, etc., from the patentees and manufacturers at the above noted address.

Laxton's Builder's Price Book for 1907.—We have received a copy of Laxton's Builder's Price Book for 1907. This is the 90th Edition, and contains about 73,000 prices. Many additions have been made in the descriptions of the system of measurements and memoranda under the different trades, and items of labour and material are more fully described. There are many chapters on Sanitary Work, Drainage, Plumbing, Paving, Wood-Working Machinery, Ironmongery, Fireproof, Heating and Ventilating, Gas Fittings, Electric Lighting, etc., etc. London: Kolly's Directories, Ltd., 182, 183, and 184 High Holborn, W.C.

DRAFTSMAN.—Wanted, temporarily, Draftsman in Dublin Architect's Office; quick, neat worker; or Assistant wishing evening work would suit; state terms. Reply "Architect," "Irish Builder" Office.

ENGINEERING NEWS.

Bray.—The Urban Council invite tenders for supplies required at their Electric Light Works for twelve months, from 1st April, 1907, including cables, carbons, house wires, switches, lamps, holders, incandescent lamps, etc., more particularly described in schedule, which will be forwarded on application. Tenders close on March 19.

Co. Meath.—Appointment of County Surveyor.—The County Council of Meath invite applications for the above appointment. The salary will be £500 per annum, to be increased by £20 yearly until the sum of £600 is reached, which will be the maximum. Each increment, however, is only to be made when the County Council is satisfied with the work done by the County Surveyor during the previous year. The salary of the County Surveyor shall include the salary of his clerk, and travelling and all other expenses, printed stationery and office accommodation excepted. Candidates must send in their applications on 3rd April next.

Galway.—At its last meeting the County Council appointed a County Surveyor for the western division of Galway, rendered vacant by the death of Mr. Perry. The salary attached to the position is £300 per annum, with £100 for travelling expenses, and an allowance of £60 for clerical and office expenses. There were eighteen applications received. The following are the names of the applicants:—J. F. Fogarty, Jervis-place, Bournemouth; Wm. Mairs, Congested Districts Board; J. T. N. Anderson, Queen's College, Belfast; David McKenzie, Co. Council of Fife; Miss Alice J. Perry, Galway; A. L. Richey, Widdley Hill, Middlesex; Robert Davidson, Co. Surveyor's Office, Belfast; David M. Gaw, do.; R. J. Kirwan, Claremorris; Jas. Quigley, Analores, Clones; F. Whitworth Jones, Southampton; Simon O'Dea, Glennamaddy; J. Moran, Omagh; Thomas T. Hamilton, Co. Surveyor's Office, Omagh; Maurice J. Dodd, Castlereagh; James Hardiman, Ballinasloe; W. N. Binns, Galway; P. J. Prendergast, Borough Surveyor's Office, Athlone. After a division, Mr. P. J. Prendergast was appointed.

Surveyor for the Eastern Division.—The question of appointing a Co. Surveyor for the Eastern Division was discussed. It was decided that the salary should be £300, travelling expenses £100, and office expenses £60. Mr. Jas. Hardiman was appointed County Surveyor *pro tem*, until the permanent surveyor is appointed.

Clones Waterworks and Sewerage. — Two Schemes Suggested.—A long report from Mr. Henry T. Weaver, C.E., anent the unsatisfactory condition of Clones Waterworks, came before a special meeting of the Urban Council on Monday last. With regard to the unsatisfactory pressure of the town's water supply and also the unsatisfactory condition of the sewerage system, Mr. Weaver submitted the following scheme:—"That an electricity installation be laid down for the town, capable of efficiently lighting the streets, supplying at least £300 of electricity at 6d. per unit annually to private consumers; supplying the necessary power for running an electric motor and centrifugal pumps to take the place of the Adam's lift, also for a similar pump and motor for raising the water for the railway company from the brook near the station, and thus avoid using town water; also capable of supplying power for a similar motor and pump for raising the sewage in the Whitehall-street district whenever the Council take the drainage of this part of the town in hand." The probable cost of this installation, etc., but exclusive of the cost of the land for electricity station, he estimated at £2500. As an alternative scheme Mr. Weaver recommends:—"That a Shone's air compressor, worked by an oil engine, for supplying power to a water and sewage ejector be installed; the former for supplying water from the ditch, already referred to, for the railway company, and the latter for raising the sewage from the Newtownbutler-road sewer to the outfall sewer." He estimated the cost of this alternative scheme, but not including the cost of land, at £700, added to the annual interest on which must be calculated cost of fuel and attendance on oil engines, etc. He had no hesitation in recommending the electricity scheme as the best possible to adopt, and one that should not fall as a burthen on the ratepayers, but should be self-supporting, and if the light is taken up as it deserves, should show a profit after paying all expenses. After discussion, the further consideration of Mr. Weaver's report was adjourned for a month.

SAFE.—Wanted, Second-hand Burglar-Proof Safe. Size about 1 ft. 6 in. deep x 2 ft. 8 in. wide, 3 ft. 6 in. high. BUTLER, 12 Dawson Street.

FOR SALE, Pocket-Case Electrum Needleprinted Drawing Instruments, containing spring bows, compasses, dividers, two pens; 19s. 6d; approval. Avery Fritwell, near Banbury.

THE LISCANNOR QUARRIES.

An Interesting Development.

Our contemporary, *Civil Engineering*, recently drew attention to the quarries at Liscannor, Co. Clare, which it described as containing the finest deposits of stone in the British Isles, but for the past 1,000 years these quarries have principally been worked for the supply of building materials for local cottages. Quite recently Messrs. George Watson and Co., Ltd., have opened offices at Little College Street in Westminster; they have also a line of boats for the purpose of conveying this stone to England. Owing to the interest that Mr. George Wyndham has taken in these quarries, the Board of Trade have given assistance in building a harbour at Liscannor. Superior in every respect to any stone on the market, "Shamrock" is not discoloured by smoke, and is impervious to acids. The great obstacle to its sale in the London market is the difficulty in getting it included in the municipal and borough specifications, and this has been described as "another injustice to Ireland," but this prejudice is happily being surmounted.

Wealth in the West.

The machinery and method of handling the "Shamrock" stone at the quarry are the best and latest systems known in either British or foreign properties. No effort has been spared and no expense stinted to guarantee both an efficient and sufficient output. A generous, almost lavish, expenditure on quarry machinery and transit facilities necessitates an immediate and increasing demand. Quite a feature is the special equipment that has been installed at the "Shamrock" Quarries for the cutting, sawing, etc., of the stone in a manner specially suited to the most modern requirements of stone-steel constructional work. Here again the siliceous character of "Shamrock" stone makes it a peculiarly valuable and suitable product, as the absence of ferric oxide prevents the possibility of any decomposition or corrosion by contact with the structural metal work. "Shamrock" stone, of course, owing to its chemical composition and quarry character, is much superior for outdoor work to any granite, marble, magnesian, or limestone. While its hardness makes it equal to granite, its closeness of texture and superior surface finish enable it to be placed on the market at considerably less than marble price where granite or limestone has heretofore been specified.

The "Shamrock" Quarries.

"Shamrock" stone has been adopted as much perhaps by the municipal engineer as by architects, owing to its manifest and undeniable weathering qualities. "Shamrock" slabs for paving cannot be excelled. Unlike many that have been heretofore specified, "Shamrock" stone slabs do not warp or chip, but remain smooth over the entire surface. Doubtless this accounts for the rapidly increasing popularity of "Shamrock" stone with engineers in coast towns, where local climatic conditions disintegrate the usual limestone or composition slabs. "Shamrock" stone must be uncommonly insoluble and compact when Messrs. Watson and Co. recommend this article for acid tanks, such as are required for chemical factories, alkali works, galvanising, etc. This is a test that few, if any, engineering stones now in general use could take.

CONTRACT.

NOTICE TO BUILDERS.

Tenders are invited for the Building of a PARISH CHURCH and PRESBYTERY at BELGOOLY, DIOCESE OF CORK.

Copies of the plans and specifications may be seen daily at the residence of the Rev. M. Carmody, C.C., Belgooly, and at the offices of the Architect, 74 South Mall, Cork.

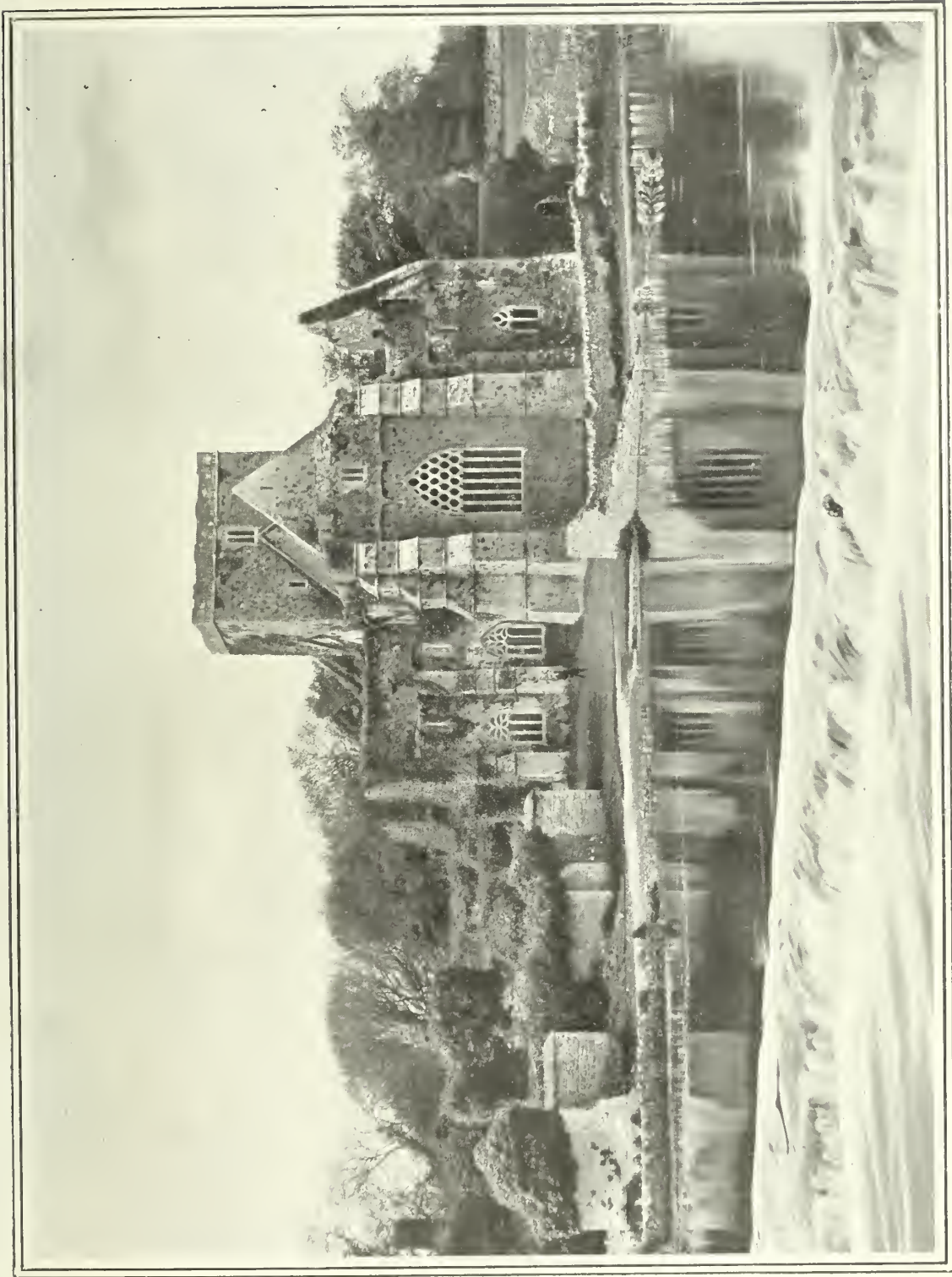
Copies of the Quantities of the Church may be had on application to the Architect, with deposit of two guineas, which will be returned on receipt of a *bona fide* tender with sealed quantities.

Separate tenders for Church and Presbytery are to be sent to the Architect not later than the 25th inst., endorsed: "Tenders for Works at Belgooly."

M. A. HENNESSY, Architect,
M.R.I.A.I., F.S.L.A., &c.

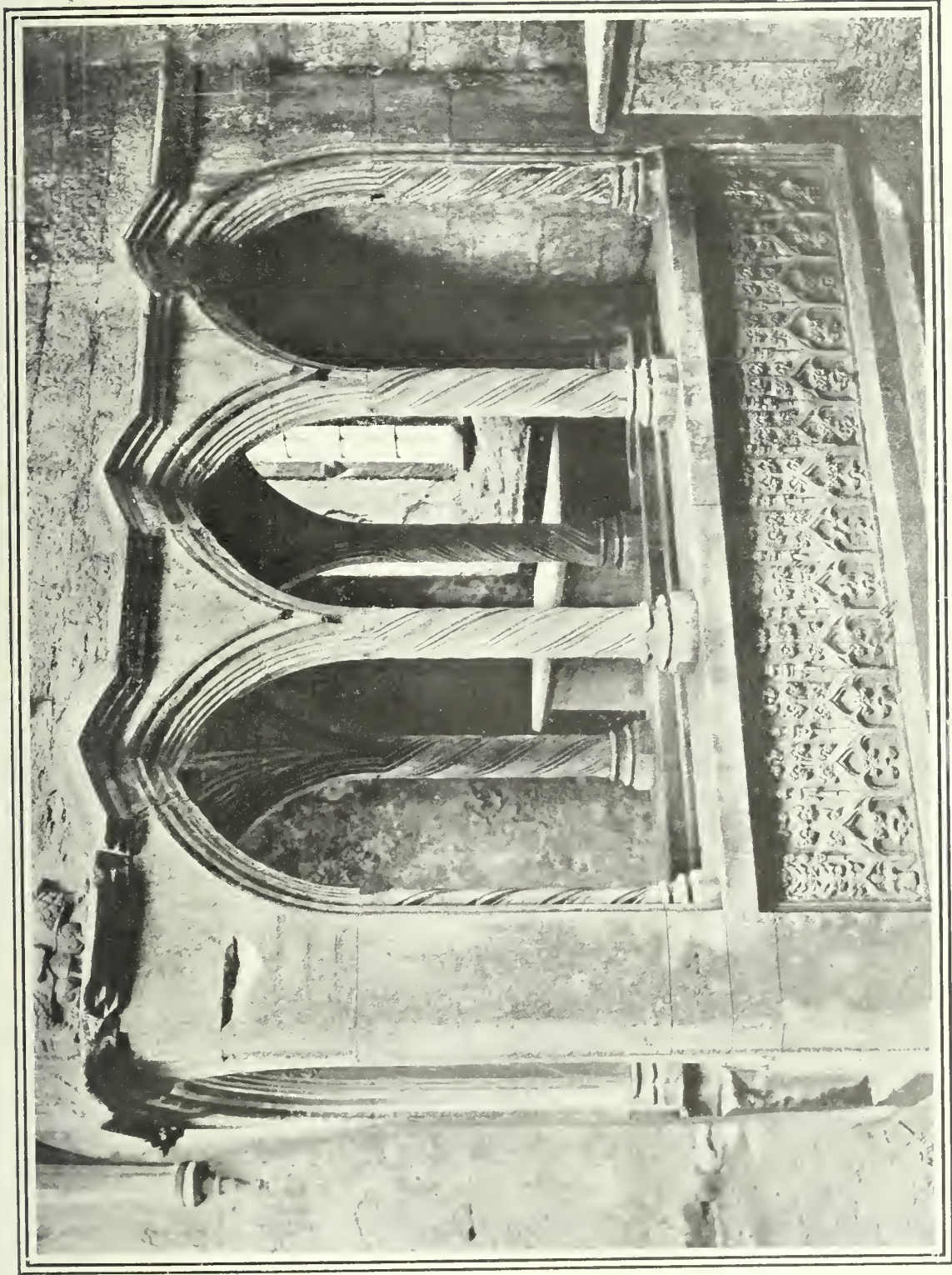
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IMPORTS.

Port of Dublin.

February 21.—Per City of Berlin, from Antwerp, 201 cases window glass, H. Sibthorpe and Son; 5 do., do., Anderson, Fenner and Co.; 51 do., do., Plate Glass and S. M. Co.; 12 do., do., Baxendale and Co.; 20 do., do., Hoyte and Son; 10 do., do., T. and C. Martin, Ltd.; 120 do., do., T. Dockrell, Sons and Co., Ltd; 10 do., do., W. Collins; 6 do., do., Boileau and Boyd; 39 do., do., J. Arigho and Sons; 100 do., do., Brooks, Thomas and Co., Ltd.; 30 do., do., to order; 504 steel joists, 7 cases marble, to order.

February 23.—Per Dunmore Head, from St. John's, 16,288 deals and ends, to order.

February 25.—Per New Design No. 2, from Bridgwater, 105 tons bricks, T. Archer.

February 26.—Per Mary Stewart, from Carnlough, 95 tons whiting, H. Moore and Alexander. Per New Design, from Bridgwater, 110 tons bricks, J. M'Ferran and Co. Per

Princess Louise, from Irvine, 130 tons fireclay, Brooks, Thomas and Co.

February 27.—Per Spencer, from Connah's Quay, 130 tons bricks, Betson and Co.

March 1.—Per Malin Head, from New Orleans, 3,529 packages oak lumber, 2,352 bundles, 1,339 pieces pine lumber to order. Per Ryland, from Rochester, 245 tons cement, A. Agnew. Per Marian, from Bridgwater, 60 tons bricks, Brooks, Thomas and Co., Ltd.; 12 do., do., J. M'Ferran and Co.; 28 do., do., Monsell, Mitchell and Co., Ltd.

March 2.—Per Winga, from Goteborg, 226 bars iron, 250 doors, 7,500 bdls. laths, 4,262 pcs. battens, 17,471 pcs. planed boards, 1 case glass, 3 cases turned wood, to order.

March 4.—Per Result, from Chester, 180 tons bricks, T. and C. Martin, Ltd. Per Lady Roberts, from London, 1,000 sacks cement, Johnston and Co.; 800 sacks cement, T. Dockrell, Sons and Co., Ltd. Per Lady Hudson-Kinahan, from London, 1,000 sacks cement, T. Dockrell, Son and Co., Ltd.; 600 sacks cement, R. Martin and Co.

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MARCH 23, 1907.

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TOPICAL TOUCHES.

Mr. T. F. Slevin was the other evening appointed Quantity Surveyor for the new Technical Schools in Bolton Street, the cost of which is estimated at £40,000.

* * * *

The designs and plans of the cottages in the Local Government Board's recent competition, which we give in the current issue, are reproduced by permission of our contemporary, the *Weekly Irish Times*.

* * * *

The International Exhibition seems to be nearing completion, and very imposing the buildings look. The grounds, too, will be most attractive. It is most regrettable that the committee has again fallen foul of another Dublin trade—cabinet-makers this time—who now go to join the architects, builders, electrical and mechanical engineers, caterers, etc. In fact, the motto writ large over the portals wide seems to be: "No Irish need apply."

* * * *

On Thursday a meeting was held in the Mansion House, Dublin, to protest against the adoption of the majority report of the recent Commission which enquired into the status and prospects of art institutions in Ireland. It is inconceivable that any Government claiming to be civilised would thus ruthlessly, so to speak, pluck up by the roots the delicate plant of art, never, during the past hundred years or so, very strongly rooted in Irish soil. The vandal proposal of the Commission is, as our readers know, to deprive the Hibernian Academy of its teaching functions, and to transfer them to a "College of Art" under the auspices of the Department of Agriculture! Foreigners would not believe in the seriousness of so insane a proposal. But, alas, true enough it is. Its adoption means the practical abolition of the Academy, which for so long has stood bravely for art under the most depressing circumstances.

* * * *

The reply of the Government to Mr. Boland in the House of Commons the other night leaves little hope that in their present mood the Government will make any effort, not merely to spare the Academy, but to strengthen and endow it with funds sufficient to enable it to pursue its mission of educating young artists. Low as the Academy has sunk in many respects, it has, nevertheless, been for several generations the only institution in Ireland adapted or pretending to give higher education in art.

Founded and endowed by an architect, and with an architect for its present President, the Academy has particular claims upon architects, while its School of Agriculture affords the best and most suitable direction in which to look for the higher development of architecture in this country, far preferable to the hybrid teaching imparted in technical schools and similar institutions.

* * * *

We have no doubt but that the Dublin public, which, unfortunately, as a whole, is probably the least artistically inclined of any city of its size in Europe, will, nevertheless, not view with indifference this deplorable proposition, and will rally to the support of the Academy, and make the weight of public opinion felt by the Government.

The Royal Dublin Fusiliers' Memorial, which is to take the form of a Triumphal Arch at the Grafton Street corner of St. Stephen's Green, is being rapidly pushed on, and is already well over ground. The architect is Mr. J. H. Pentland, of the Board of Works, and the builders Messrs. Lavery, of Belfast.

* * * *

The Institution of Civil Engineers in Ireland at the last general meeting adopted the proposal mentioned in our last issue to abolish the office of secretary, and to re-establish that of "clerk." The motion, the advantage of which is not very clear, was adopted by a majority of 14 to 5, only 19 members being present and voting.

* * * *

The recent extension of the principles of the Workmen's Compensation and Employers' Liability Acts has brought so many persons—even domestic servants—within their operation, that the question has been put to an eminent lawyer whether a resident engineer carrying out works under a Town Council, and at a less salary than £250 a year, was not a "workman" under the Act? His opinion is that a resident engineer is a workman under the Act "if he has entered into or works under a contract of service with an employer." The same thing applies to a clerk of works.

* * * *

No issue out of the deadlock which has occurred between the master builders and the architects! The stone-cutters have again protested against the work being hung up on this account. At a meeting held in the Trades Hall the other day the chairman gave a deplorable account of the depression existing in the building trades in the city. Never before in living memory was there so great distress, many honest, capable tradesmen, with families dependent upon them, being on the verge of starvation. It is greatly to be hoped that the Government will take the building of the new Royal College of Science seriously in hands, instead of playing with it as they have been doing during the past two or three years (the quantities are, we understand, prepared in London), and that no further delay will occur in starting the Technical Schools.

* * * *

There can be no doubt but that the building trade in Dublin is in for a prolonged period of depression, the long spell of speculative building which for a good many years was "booming" in Foxrock, Greystones, Kingstown, Terenure, North Circular Road, Glasnevin, Drumcondra, etc., has come to an end, and there is evidence that it has been overdone. Whole towns have sprung into existence with the rapidity of a Western American settlement, the population being, however, drawn from the older portions of the city, large residences which are now more or less white elephants on the market. Coupled with this speculative building, there prevailed for over twenty years an unexampled period of prosperity, largely brought about by the great wave of church and school building. This has ebbed, never again to flow as it once did. Few classes of important buildings seem to be in demand either now or for the near future. Labourers' cottages are the buildings of the moment, but the only chance of any serious revival of important building in our time lies in the hope of a great industrial revival in Ireland. Then we may see town and country halls, Technical Schools, theatres, new and improved elementary and secondary schools, factories, and mills everywhere growing up.

SOME ASPECTS OF THE HOUSING QUESTION.*

By CHARLES H. ASHWORTH, F.R.I.B.A., *Architect to the Dublin Artisans' Dwellings Co., Ltd.*

Under the title—"Some Aspects of the Housing Question"—I have endeavoured to sketch briefly the history of the housing movement, and give an account of the work that has been done—more particularly in Dublin, so that we may form some opinion as to how far this work, vast as it is, meets the needs of the people in the ever-increasing population of our great cities.

I should like to mention that when collecting statistics of Dublin and suburbs, my enquiries were met with the utmost kindness by the official representatives of the Public Bodies, Companies, and Trusts referred to in this paper, and by my brother-architects and others, to whom I wish to express my sincere thanks for their kind assistance, particularly to my friend and office colleague, Mr. Flood.

My paper has chiefly to do with municipal, public company, and private enterprise and philanthropy in Dublin and suburbs; but as no paper on the housing question, however modest in its aims, would be complete which had no reference to that aspect of the question—The Model Village—which has, for instance been so delightfully carried out by Messrs. Lever Bros. at Port Sunlight, I determined to see if I could include it as one of the aspects. I wrote to Mr. Lever informing him about my forthcoming paper, and asked for his assistance. I received a prompt and most courteous reply from the firm, with a promise to assist me in every way in their power. As an earnest of this, I have pleasure in informing you that I have received some thirty-six slides from them, in which, I am sure, you will be greatly interested.

Even the most casual student of the history of our times must come to the conclusion that it was scarcely possible for any organised thought or action, in the direction of the better housing of the working classes, to have developed any sooner than it actually came about.

Only a few years before the first Royal Commission was appointed to inquire into the better housing of the poor, England was seething from end to end in the grip of a great and, at times and in various places, violent political revolution—prior to the passing of the first Reform Bill in 1832.

Some idea of the state of the system of representation in Parliament at that time may be gathered from a passage which I extract from Mr. Stanley Weyman's very interesting novel, "Chipping":—

"The system of representation in Parliament at this time was so anomalous as to seem to us incredible. A system under which Gotton, with no inhabitants, returned two members, and Sheffield, with something like one hundred thousand inhabitants, returned none: under which Dunwich, long drowned under the North Sea, returned two members, and Birmingham returned none: under which the City of London returned four, and Lord Lonsdale nine; under which Cornwall, with one-fourth the population of Lancashire, returned thrice as many representatives: under which the South vastly outweighed the North, and land mightily outweighed all other property."

In 1843 there was appointed a Royal Commission, with the Earl of Shaftesbury as Chairman, to enquire into the better housing of the poor, but it was not until 1851 that the Legislature made the attempt towards solving the modern social problem of providing proper dwelling accommodation for the working classes of the community. The Act then passed—(I quote from Mr. Charles E. Allan's book, "The Housing of the Working Classes Acts")—was called the "Labouring Classes Lodging House Act, 1851, and it was followed during the next thirty-five years by at least sixteen statutes directed to the same end.

"For various reasons these statutes failed to produce the result anticipated, and many of them were practically never put into operation.

"At first this was largely due to the apathy of local authorities, but latterly the mass and complexity of the legislation on the subject contributed largely to bring about this failure."

In the early days the Royal Commissioners and Parliament had very little to guide them; they were, so to speak, groping in the dark. So that, if we are but fair and impartial, we find nothing to wonder at in this failure, but rather that it is remarkable the country was not discouraged in persevering in the teeth of what must, at that time, have appeared to be insurmountable difficulties—difficulties that have not yet disappeared, for, after a lapse of more than half-a-century, we find our daily papers containing, in prominent places, the head-lines—

Housing Problem.—Important Deputation.—Coming Legislation.

proving, though it may not be so complex as in the early fifties, the problem is still one of the most important questions of the day, and one that has, apparently, not yet been solved or exhausted in all its aspects.

I believe I am correct in stating that the Act of 1851 was chiefly concerned in altering and improving existing habitations. It was, however, remarkable in this, that it was the beginning of greater thoughts and higher aims, and was very fittingly associated with the name of the late Lord Shaftesbury, who did so much during his life for the betterment of the condition of his fellow-men.

The following Acts during the next fifteen or sixteen years did not mark much progress, and it became necessary, therefore, that the law should be consolidated and amended, and this was effected by the Housing of the Working Classes Act of 1890, which Act may be regarded as embodying the principal statutory provisions now in force.

It repealed and consolidated practically all of the previous statutes, with the exception of certain statutes dealing with Labourers' Cottages in Ireland, which aspect of the question, as you are aware, has been recently the subject, during the last session of Parliament, of a special Act.

Certain sections of the Housing of the Working Classes Act, 1885, were also left unrepealed, but such of these sections as are now operative relate to the general sanitary law; they are now included among the Public Health Acts, and, therefore, are not within the scope of this paper.

Since the consolidating Act was passed there have been six amending statutes, but, with the exception of that of 1900, they are not of much importance. Only one of them, namely, the Housing of the Working Classes Act, 1894, applies to the United Kingdom; that of 1900 is confined to England and Wales, and of the others, one of 1896 applies solely to Scotland, and the remaining two of 1893 and 1896, and the recent one of 1906, relate exclusively to Ireland.

The Act of 1890 is divided into seven parts:—

- No. 1—Unhealthy Areas.
- .. 2—Unhealthy Dwelling Houses.
- .. 3—Working Class Lodging Houses.
- .. 4—Supplemental.
- .. 5—Application to Scotland.
- .. 6—Application to Ireland.
- .. 7—Repeal and Temporary Provisions.

Mr. Allan expresses the opinion that the divisions are neither clear nor scientific, and the Act betrays all the faults naturally incident to a consolidating and amending statute. As an instance, he says, it may be pointed out that there are at least three different procedures, under different parts of the Act, for the purpose of taking land compulsorily, and a distinct way of putting each of these powers into operation.

Perhaps it is that I do not quite follow this argument; anyhow, it seems to me that an Act which provides not only an alternative but a third course under which its provisions can be put in motion, is one that carries with it evidence of the intention and desire on the part of its framers to provide for any contingency that might arise.

I have had some experience under this Act, and I must say, in spite of the great amount of work, delay, and worry that arises (generally included within the term "red tape") in connection with the clearance of even a small area, in my opinion, nothing is done which could reasonably be called superfluous or omitted: every care, in such cases, must be taken in sifting the claims of interested parties, to see that they are fully and fairly compensated for disturbance in the first place, and that, in the end, full and unassailable title to the areas so cleared is established beyond a doubt.

The powers given by the Act of 1890 enable the authorities to deal with:—

- (1) Individual houses, by insisting on having them made fit for habitation, or, if that is not possible, by closing or demolishing them.
- (2) Obstructive buildings, which cause other houses to be unhealthy, by enabling the local authority to demolish them.
- (3) Small areas of unhealthy houses, by having them pulled down and re-constructed.
- (4) Large areas or "slums" which can be acquired and pulled down, and an important scheme carried out.
- (5) The erection of dwelling and lodging houses for the working classes in districts where the same are required.

*Paper read before the Architectural Association of Ireland, 19th Feb., 1907.

It would be impossible, within the limits of this paper, to give any account or even to summarise the work done throughout the Kingdom; suffice it to say—it extends to millions of expenditure, and the provisions of the Act have been put into operation in most of the great centres of population; that there is yet much to be done, is clearly in evidence.

Important proposals for reform in existing legislation were recently brought forward by a deputation to the Prime Minister and the President of the Local Government Board, chiefly under the following heads:—

- (1) That local authorities should be stimulated to carry out their duties under the Health and Housing Acts.
- (2) That there should be compulsory house-to-house inspection.
- (3) Closing and demolition of unhealthy dwellings.
- (4) Clearance of slum areas.
- (5) The creation of model suburbs.
- (6) Increased facilities to local authorities for acquiring land.
- (7) Cheapened and simplified process for compulsory purchase of land.
- (8) The appointment of a town and village development commission.
- (9) Small holdings developments.
- (10) Town extension planning.
- (11) Cheaper loans to local authorities.
- (12) Revision of bye-laws.

Strong arguments were advanced in favour of these suggested reforms. The evils arising from defective housing accommodation, such as increased mortality, greater burdens upon friendly societies and charities, and moral consequences, were pointed out, as was the intimate connection between the question and the national physique of the population.

It was represented as an inconsistency, that the health of the factory hands should be so carefully guarded in the matter of workshops and similar places, while the same precautions were not enforced in the case of home surroundings, a point that attracted the marked attention of the Premier. Greater elasticity in the Building Bye-laws; increased facilities for acquiring land compulsorily; more driving power behind existing Acts of Parliament, and liberty for a healthy variety of experiments, were demanded.

The attitude of the Premier and Mr. Burns was naturally sympathetic, and while they promised nothing very definite, they admitted the need of practical action.

Mr. Burns mentioned incidentally that the English Local Government Board were conducting about one hundred inquiries in connection with the various aspects of the question.

He laid great stress on the importance of securing more active interest and energy from local authorities in carrying existing powers into operation. In this connection, he hinted at the desirability of investing the County Councils with power to act where Urban District Councils were inert.

He recognised that much had been done, but considered there was still room for improvement. In this connection Mr. Burns alluded to the close relation which improvement in traction had to the whole subject—cheap, easy, popular, and relatively noiseless tramways. He also acknowledged that much was also due to the increased care and consideration of architects in providing more suitable accommodation for the poor and working classes.

The Prime Minister practically endorsed the views of his colleague, but dwelt at greater length on the difficulty of arriving at a *via media* between the extreme demand for the right of Compulsory Acquisition of Land being ceded to Public Bodies, and the opposite extreme of restricting the rights to specific instances. A similar difficulty arose in connection with the Bye-laws; if they were to be effective they must be stringent; yet, a demand was made for greater elasticity in applying them. He emphasised the importance attached by Mr. Burns to enabling pressure to be brought to bear on local bodies where slackness was observable. Finally, without committing himself to any definite undertaking, he observed that something might be done within a few months to carry out the object which the deputation had in view.

The foregoing brings us up-to-date with the question, and is important, in so far that we have now the expressed opinion of the present Government, or at least of the two members of the Cabinet who are most intimately associated with the subject.

For all practical purposes, though England was alone represented at the Conference, the conclusions arrived at could be readily applied to Ireland and other parts of the Kingdom, though perhaps only in a minor degree.

Dublin.

Let us consider the case of Dublin. The extension of the city boundaries some six years ago makes a comparison between the health statistics of recent years and those preceding 1901, a rather difficult process. According to the figures adopted by Sir Charles Cameron, the present area of the city is 7,911 acres, comprising 7,745 acres of land and 166 of water. The Dublin registration area, in addition to the city proper, includes the Townships of Rathmines, Pembroke, Blackrock, and Kingstown, and portions of the Rural Districts adjoining—reaching as far as Howth on the North side—comprising in all close on 13,800 acres. The old city, as it stood before the extension took place, had a population in 1851 of 258,361, which showed a steady decline in each succeeding census, so that in 1891 it had dwindled down to 245,001.

In the ten years that followed a marked improvement took place; the corresponding figure in 1901 being 266,135.

The effect of including the Townships of Clontarf, Drumcondra, and Kilmmainham, in 1900, was to add 24,503 more, so that according to the 1901 census the enlarged city had a population of 290,638, representing 36.7 persons and 4.48 houses to the acre.

In this connection it is well to remember that a large proportion of the added areas was unbuilt on, or sparsely inhabited. In the districts comprised in the unextended city, with its 3,733 acres and population of 266,135, the number of persons to the acre was 71.3 in 1901.

The population of the city proper to the middle of 1905 has been estimated at 293,385, showing 36.9 persons to the acre.

In the larger area, known as the Dublin Registration Area, the population in 1891 was 349,594, and in 1901, 376,186.

In the middle of 1905 it was estimated at 378,994, or 27.5 persons to the acre. Thus the suburban districts included in the Dublin Registration Area had, in 1904, a population of 85,609 persons, or about 14.6 to the acre.

I have a very interesting table in which is computed the number of the houses and the population to the acre for the separate wards in 1901. From it can be readily ascertained the relative figures, one to the other, in the several wards.

1901.					
North Side.	Houses.	People.	South Side.	Houses.	People
Arran Quay ..	6'02	54'6	Usher's Quay ..	3'24	33'2
Inns Quay ..	11'60	110'3	Merchant's Quay ..	10'23	81'24
Mountjoy ..	12'90	102'9	Wood Quay ..	15'80	130'0
North City ..	15'73	107	South City ..	15'10	81'20
Rotunda ..	11'04	105'6	Mansion House ..	9'30	104'3
North Dock ..	5'48	42'	Exchange ..	13'24	107'70
Added Areas			Fitzwilliam ..	8'33	61'6
Clontarf less } ..	1'00	4'8	Trinity ..	7'63	77'
than }			South Dock ..	4'52	36'6
Drumcondra ..	1'80	10'4	Added Area		
Glasnevin ..	1'28	7'36	Kilmmainham ..	1'5	9'7
Total for entire } ..	4'48	36'74			
City }					

The Health of the City.

In the year 1879 the death-rate in the Dublin Metropolitan Area was 34.6 per 1,000 persons living, and the zymotic death-rate was 5.6 per 1,000. In the city the death-rate was 37.5, and the zymotic death-rate 6.2. In the first half of 1906 the corresponding figures were:—

Registration Area ...	22.0 and 0.7
City ...	23.4 and 0.8

Sir Charles Cameron attributes the enormous rates of the earlier years largely to the bad condition of the tenement houses, in which, he says, more than one-third of the population of Dublin resided, and to the existence of many thousands of privies—mostly close to the houses, and generally in a very unclean and ill-kept condition. He goes on to say—the two important objects to be obtained were:—

- (1) To effect the betterment of the tenement houses.
- (2) To abolish the privies.

To what extent these objects have been attained may be gathered from the foregoing appreciable reduction in the death-rate from general and zymotic causes. No doubt both these objects were eminently desirable, and their gradual attainment must have appreciably affected the public health for the better. But I think the steady development of the housing schemes from 1876 to the present date, and the clearance of defective areas, to make room for same in many cases, must be taken into account, and the movement given its just and proper place in the uplifting change that has taken place.

In the very exhaustive work written by Mr. Rowntree, of York, dealing with the lives of the working classes, I read that Sir Benjamin Richardson, the eminent sanitarian, has laid it down that no city would be really healthy which

contained more than twenty-five people to the acre. I regret I have not been able to study this statement in its original context, but further on in Mr. Rowntree's book I find tables which give the number of people to the acre in fifteen English cities and towns; the average of them works out at 20.75, and in twelve American cities the average is approximately 14.25.

The returns issued by the Registrar-General for England, in the case of the principal English towns and cities, show an average annual death-rate of 16.29 per thousand per four years, 1902-1905.

In the fifteen of these towns particularised by Mr. Rowntree, the average number of people to the acre is, as already mentioned, 20.75, with a death-rate which in 1905 ranged from 13.05 to 20.06 in the thousand.

Thus even in the towns which fulfil Sir Benjamin Richardson's requirements as to the density of population, we find the death-rate somewhat high. Are we, therefore, justified in regarding these centres as healthy? On the other hand, if we can point to other urban centres in which the population per acre is higher than the great sanitarian lays down as a maximum, but in which a very low death-rate is recorded, are we justified in doubting whether his dictum is in any way a test of health? The village of Port Sunlight, Cheshire, is laid out with 10 houses to the acre, with a death-rate of 9 in 1,000; in 1904 the population was estimated at 3,000 people.

The properties of the Dublin Artisan Dwellings Company are dotted down in all parts of the city. The average estimated death-rate of these properties is 10.5 per 1,000, and if you single out the large property known as the Mount Temple Area, of which I propose giving you some further particulars, we find that in a large area of this kind, built under the most favourable conditions, the estimated death-rate last year is only about 9 in the 1,000. Here we have about 35 houses to the acre; the total being about 1,000 houses having, say, 150 to 160 people to the acre.

Further, if we single out two of the Dublin Artisans Dwellings Company's properties that have been built on the two cleared areas mentioned in the Medical Officer's Report—I refer to what are known as the Coombe and Plunket Street Areas, right in the centre of the oldest parts of the city—what do we find? On the Coombe property the death-rate in 1906 was 13 in the 1,000, and on the Plunket Street property it was not more than 8.5 in the 1,000, the number of houses to the acre being in both cases greater than the proportion on the Mount Temple Estate.

Originally the Coombe property had the privy ashpit system, with water carriage for surface water and scullery waste. The Plunket Street property was originally built with the water carriage system as understood in those days. Both these properties have been entirely remodelled in this respect.

All this goes to prove, in my opinion, that it is possible, under favourable conditions of well-constructed houses and good drainage, to obtain a very satisfactory condition of things, even though the population is much greater than twenty-five to the acre.

Progress in Dublin.

Now let us consider what progress has been made in the last thirty years in Dublin and suburbs, within the Registration Area.

The Dublin Artisans Dwellings Company was set on foot in the year 1876.

The movement thus initiated was cordially taken up, and the Company established, with a capital of £50,000 and power to increase same.

Since its formation the Company have greatly extended their operations, and have now many properties built in various parts of the city, in addition to which they have property in the Townships of Rathmines and Kingstown, and have even gone out so far as Bray, providing accommodation for 3,223 families.

The capital outlay of the Company on land and buildings is £528,149 0s. 0d., and in addition to the several building schemes, the Company have completely remodelled the drainage and sanitary arrangements of the following properties:—

	£	s.	d.
(1) Buckingham Buildings	1,974	0	0
(2) Coombe	2,750	0	0
(3) Plunket Street	2,764	0	0
(4) Portobello	4,852	0	0
(5) Echlin Street	475	0	0
(6) Harold's Cross	2,357	0	0
(7) Temple Buildings and Cottages	1,090	0	0

The total cost of these works
being approximately ... £16,262 0 0

The present operations consist of the completion of what we call the Mount Temple Estate, the contract for which is about £58,000.

The earlier operations of the Company were confined to the tenement type of several stories. The last of these structures to be built, after a long interval, was the Cramp-ton Quay property, which is a scheme having two stories of three-room tenements over shops—completed in 1891. The policy of the Company now is to extend its operations more in the direction of the outskirts of the city, and in all cases (whether near in or far out) to build self-contained houses of the foregoing types, having separate entrance doors from the streets.

To my mind the separate house is far superior, and certainly more popular, than the tenement system, however excellent and lavish the conditions of the construction of the latter may be.

Moreover, there is not the same necessity for concentration in Dublin as exists in the great cities of England, with their vast working populations and greater distances. It is desirable always to house the workers as near as possible to their work, no doubt, and the only possible method in many places is to build houses in the storied flat system.

I do not wish to convey that the schemes that have been built in various parts of the city of this character are not proper schemes; far from it—they were necessary, and fulfil a beneficent purpose; most of them are on sites of ancient and horrible congestion, cleared for the benefit of the general community; the surroundings and circumstances demand that the new buildings shall be monumental and proportionate in character. In many cases the cost of acquiring these central sites is so great that it becomes necessary to erect block dwellings.

It would hardly be possible, if desirable, from the general point of view of proportion, to erect two-storey or one-storey self-contained houses on these sites, where the surrounding buildings are lofty; but, on the cleared areas, such as those referred to by Sir Charles Cameron in his Report, as cleared by the Corporation and rented to my Company, known as the Coombe Area and the Plunket Street Area, both of which are set back from the old main thoroughfares, I am of opinion the right thing has been done in laying them out in streets of suitable widths, and erecting on the resulting sites two-storey, and one-storey self-contained houses, rather than storied tenements.

In 1881 the Dublin Corporation adopted a report of Sir Charles Cameron, recommending the erection of dwellings for the working classes. Since then the Corporation have spent £250,000 in dwelling schemes, and in clearing the two sites referred to—about £50,000.

The number of families provided for in the Corporation dwellings are 1,182.

The later schemes have been designed and carried out by Mr. MacCarthy, the City Architect.

The Guinness Trust (Dublin) Fund was founded by Sir E. C. Guinness, Bart. (Lord Iveagh), in April, 1890, with a gift of £50,000. The principal object of this Trust was declared to be the "amelioration of the condition of the poorer classes of the working population of Dublin, and of their mode and manner of living, by the provision of improved dwellings, etc."

In 1899 Lord Iveagh obtained an Act of Parliament, known as the Dublin Improvement (Bull Alley Area) Act, to enable him to acquire and clear the Bull Alley Area, and afterwards to utilise the site, partly by giving certain portions to the Corporation for straightening, widening, and improving adjacent streets, but chiefly for the erection of such buildings as he might think fit, including workmen's dwellings, shops, a lodging house for single men, swimming bath, etc.

(To be Continued).

The Patent Indented Steel Bar Co., Ltd., have received a cable from New Zealand notifying them that the Jury of Awards of the International Exhibition, now being held at Christchurch, have awarded them a gold medal for their exhibit, this award being the highest that could be obtained. This is the third gold medal that the Indented Steel Bar has been awarded at the International Exhibition

ARCHITECTS WANTED

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ATHY WATERWORKS.

Having described in general outline the main natural features which govern the design of the Athy waterworks, a description in detail of the works as now carried out will be interesting.

It has been found from experience in similar provincial towns that an average of twenty gallons per head during twenty-four hours is sufficient to cover the consumption per head of the population for all purposes; that is to say, for drinking, cooking, washing, street-watering, etc. It was, however, thought wise to increase the figures by twenty-five per cent. in the case of Athy, and provide for a minimum supply at the rate of twenty-five gallons per head per day of twenty-four hours. This is a provision for a possible increase in population, a very hot summer when much water would be consumed, and possible undetected leakage in the water mains. The total quantity of water to be supplied is, therefore, 90,000 gallons per twenty-four hours. But this is taking into account the night-time, when very little water is being used, as well as the day, during which the water is naturally consumed in much greater quantity. In fact, almost the whole 90,000 gallons may be consumed in twelve hours instead of the twenty-four hours, so that the pipes, etc., had to be designed to supply water at double the above rate, or 180,000 gallons in twenty-four hours as a minimum. For various other reasons which need not be enumerated, even this figure had to be increased, and the pipes supplying the town are now capable of delivering upwards of 300,000 gallons in twenty-four hours. For the present, therefore, Athy need not apprehend a water famine.

In October, 1905, the Council decided finally to appoint Mr. James F. Reade, A.M.I.C.E., as engineer. Since then the work has gone on without interruption, its former opponents working heartily with its advocates in order to leave nothing undone to ensure the success of the undertaking upon which they had embarked.

From the engineering point of view, the first thing to be done was to trap the water as it issued from the springs at Wolfhill and Modubeagh. For this purpose a concrete chamber has been built close to each spring, into which the water is led through concrete channels, so that all the water issuing from the springs must enter the chambers. From these chambers iron pipes convey the water away to the service reservoir.

In case only a portion of the water from each well is required, overflow weirs are provided in the chambers, which allow the surplus water to flow away into its old course.

The Wolfhill well has about 86 feet higher elevation than the well at Modubeagh, and is distant about 770 yards from it. A 4-inch diameter cast-iron pipe conveys the water from the Wolfhill well to the well at Modubeagh, where it delivers into the 5-inch pipe which leads from the latter well. It will be readily understood that, flowing under a pressure of 86 feet, the 4-inch pipe would not only deliver into the 5-inch pipe from the Modubeagh well, but also flow back into the Modubeagh chamber, raising the level of the water there, and run the waste through the overflow. To prevent this an automatic arrangement, called a reflux valve, is used, which closes whenever the pressure from Wolfhill exceeds that from the Modubeagh well, and opens when the pressure from the former well exceeds that from the latter; the whole being so adjusted that each well supplies its own proper proportion of water, neither more nor less. If, from any cause, such as repairs or cleaning, either of the wells can be shut off, if necessary, by means of valves provided for the purpose, allowing its partner to work alone.

The two waters join together in the 5-inch pipe just outside the Modubeagh well, and are conveyed in that sized main through private land as far as the cross roads near Glashna Bridge; thence along the public road towards Athy as far as the service reservoir. In all cases where the pipes run along public roads, the grass margin, where such exists, on the opposite side to the footpath has been selected in which to lay the pipes, as this presents the easiest ground for digging, and at the same time offers the least obstruction to traffic.

The service reservoir is situated about 3,000 yards from the Modubeagh well, and is at about 135 feet lower level. It is rather more than six English miles from the Canal Bridge in Athy, and about 270 feet higher. The reservoir consists of two chambers, each capable of containing 22,500

gallons, or 45,000 gallons total capacity. Each tank or chamber is constructed of massive concrete walls, partly in excavation and partly in bank; that is to say, an excavation was first made about half the depth of the reservoir in which the walls were constructed, and having been carried up to the full height, the earth taken from the excavation was piled around them forming an embankment. The same massive construction was adopted in the floors and roofs of the tanks.

The roofs are supported by steel girders built into the concrete, and are made water-tight by a layer of asphalt spread over the top surface. The tanks are also covered with about one foot of earth, which in course of time will be covered with grass. Thus the water contained in the reservoirs will be out of range both of the sun's rays in hot weather and of the effects of frost in winter time. The 5-inch delivery pipe is carried into each of the chambers, the inlet being separately controlled by a float valve which shuts off the water when the tank is full. Even if the float valve should fail to act when the tank has been filled, no harm can result from flooding, as the water, when it rises beyond a certain height, finds its way down a waste pipe and away into a neighbouring stream. Each tank is provided with a water cushion beneath the inlet in order to prevent the wearing away of the concrete by the constantly falling water. Outlet valves are also provided, by means of which the water can be admitted or shut off from the main pipe supplying Athy.

Washout valves and overflow pipes also form necessary adjuncts. The former are used when it is required to empty or clean out the tanks, and the latter to ensure that the water can never rise above a certain height in them. When full the water in the tanks stands at nine feet deep.

The tanks are entered by manholes, and the bottoms reached by wrought iron ladders fixed to the concrete walls.

All the various valves described above are worked from outside the reservoirs. Hence, except for cleaning purposes, it will never be necessary for anyone to enter the reservoir.

Should it ever be necessary to empty both tanks at the same time, water can still be supplied to Athy by means of a bye-pass. By closing the two inlet valves to the tanks and opening the bye-pass valve, water from Wolfhill and Modubeagh wells is admitted directly to the supply mains without going through the reservoir.

From the service reservoir a 6-inch diameter cast iron main is laid. The main lines of piping are furnished with stop valves, which divide them into sections. By means of these any section can be isolated, emptied, and repaired, while the remaining sections stand full. When the repairs have been effected and the valves reopened, that one section fills up quickly, thus obviating the delay and inconvenience of having to refill the whole pipe line. Wash-out valves are also provided by which any of the above sections can be flushed out at their lowest points, the rush of water sweeping with it all accumulation of silt, rust, etc. At all the high points along the line automatic air valves are placed, which allow the air naturally contained by all water to escape as it accumulates. If air valves were not thus placed, the pipes would become blocked by air at all the high points, and this would not only seriously diminish the flow of water, but probably prevent it altogether. Another interesting feature in the pipe line is shown in the hatch boxes. These are simply sections of pipe with a cover bolted on, which can be removed when necessary, exposing the interior of the pipe. The object of these openings is for the insertion of scraping tools, which, when placed in the pipes, the hatch cover bolted down, and the water turned on behind them, will be driven forward by the water pressure, revolving as they go, thus scraping rust, etc., from the interior surface of the pipes. The scraping tool is withdrawn at the next lower down hatch box, the section scraped, flushed out with water, and the operation repeated on the next section, and so on until the whole line has been scraped and cleaned. All the valves, scours, and hatch boxes have brick chambers built around them, and iron covers, so that all are accessible at any time with the minimum delay.

In Athy the water is distributed through practically all the streets in 6-inch, 5-inch, 4-inch, and 3-inch pipes. The 6-inch pipe is carried as far as the Leinster Arms Hotel. Leinster Street has a 5-inch pipe as far as the approach

to the railway station, and a 4-inch pipe to the Model School. The side streets, with the exception of Woodstock Street, have 3-inch pipes, Woodstock Street being provided with a 4-inch pipe as far as Barrack Lane.

The pipes in the town are also divided into sections by valves, arranged as far as possible so that the supply to any street may be cut off without interfering with the supply elsewhere in the town.

The Local Government Board sanctioned a loan of £7,000 for the purpose of carrying out the works, and the contracts were well within that figure. In July, 1906, during the chairmanship of John A. Duncan, Esq., J.P., the contracts were entered into, Mr. Jeremiah Fitzpatrick, of Kanturk, being the contractor for the construction work. The Stantan Iron Works Company, of Nottingham, the contractors for cast iron pipes, and Messrs. Blakeborough and Sons, of Brighouse, Yorkshire, supplied valves, hydrants, etc.

The work was carried out under the immediate superintendence of Mr. Alfred Burgess, as resident engineer, Mr. James F. Reade, A.M.I.C.E., being chief engineer.

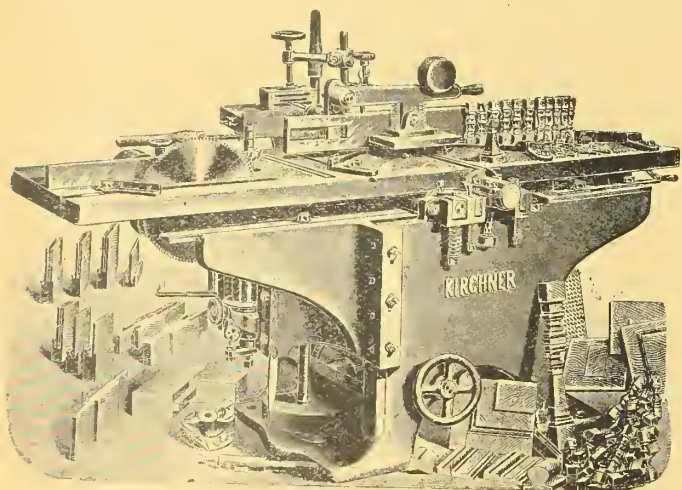
The works were formally opened to the public on February 7th, 1907.



A NEW UNIVERSAL WOODWORKER.

By Kitchner and Co., London.

Owing to the many so-called general joiners, which have from time to time been placed upon the market by various makers, many of which have resulted in failure, owing to various reasons—difficulty of adjustment, great loss of time in changing from one operation to another, the design and faulty assembling of the different parts of the machine, etc.—there is, at present, a certain amount of distrust attached to the term.



The machine, illustrated herewith, which is designed and manufactured by Messrs. Kitchner and Co., Sawmill Engineers, of 21, 23, and 25 Tabernacle Street, London, E.C., has been placed upon the market after considerable study of what is practicable and desirable in a machine of this type. Since it was introduced within the last twelve months many joiners, builders and contractors, being struck with the general appearance and practicability, have selected it, and their selection has evidently been justified, seeing the number of flattering testimonials the makers have received from users.

As will be seen, it is designed upon substantial lines, and appeals to both the expert as well as the layman. In detail, efficiency, and ease with which it can be adapted to the various operations, it is, indeed, unique. Amongst the operations which it will perform in the highest class manner we enumerate the following:—Surface planing and thicknessing up to 20 ins. wide by 6 ins. thick, joint chamfer, rebate, tongue and groove, cut straight, circular and irregular mouldings up to 4 and 5 ins. deep, circular sawing, cross cutting, boring and mortising, cut single and double tenons, with straight or scribed shoulders up to 6 ins. long, open and blind dovetails, and with the many patent attachments will do square and spiral turning, raise panels, etc.

The particular feature of the machine is that free access is given to every part.

There is no complication whatever, and no part is likely to get out of order. Two operators can work at the same time without interfering with each other; one can be doing planing, moulding, or sawing, whilst the other is mortising.

The main frame of the machine is exceedingly heavy and in one solid casting. The planing cutterblock is extra strong, 4-slotted and fitted with steel lips to prevent tearing out of timber, and is accurately balanced for a high running speed. The jointing tables, which are 8 feet long, are extra heavy, and fitted at the gap with taper steel lips, making the gap very small for planing and jointing. Both tables are adjustable independently of each other and have compound motion; they can be moved up and down to regulate thickness of cut required, and can furthermore be instantly drawn out horizontally to give sufficient clearance for the use of large moulding cutters, or when free access to the cutterblock is required.

When thicknessing and panel planing work is done, the feed motion is effected by a powerfully-g geared feed roller in front of the cutterblock, immediately below which is a friction roller fitted into the table.

In front and behind the cutterblock pressure bars are fitted in such a manner that mouldings up to 6 ins. wide by 1 1/4 in. deep can be cut without any parts being removed from the machine.

The saw mandrel runs in long, adjustable bearings, and will take sawblades up to 14 ins. diam., or, if specially ordered, 16 ins. diam. A loose plate is fitted in the table to facilitate changing the sawblades. An accurate sliding fence, for cross and mitre cutting, is provided, as well as a canting fence for ripping and bevelling.

The vertical spindle moulder, for straight and irregular mouldings, is of very strong construction, the design and strength of the working parts being ample. The bearings are conical and of best phosphor bronze, allowing instant adjustment. The spindle is arranged for interchangeable loose spindle ends thus being suitable to work with either so-called "French" spindle end, a steel cutterblock, or grooved washers for moulding knives; tenoning cutter-heads, dovetailing cutters, etc., can also be used. Upon special order this machine can be fitted at the rear with a complete slot boring and mortising apparatus. The mortising table can be raised or lowered to the required height and is fitted with compound motion; adjustable stops are provided to regulate length and depth of slot.

All bearings in the machine are extra long and adjustable. A machine can be supplied in various combinations, with or without the circular saw, vertical spindle moulder, and slot mortising attachment.

The makers will be glad to furnish further detailed information of this and their many other improved joinery machines to interested persons. Their latest catalogues will also be sent free on receipt of a post card.



FERRO-CONCRETE PILE CASE.

In June last proceedings were instituted against infringers of Hennebique's Patent for concrete piles. Mr. Justice Warrington gave a verdict in favour of Mr. Hennebique's Patent. He declared that it was perfectly valid, and that the opponent's work was an infringement. That verdict has just been reversed by the Court of Appeal. Mr. Hennebique is advised that the Bench took an absolutely erroneous idea of the case, and he has decided to carry the matter to a higher court.

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VOL. XLIX.	MARCH 23, 1907.	No. 6.
CONTENTS.		PAGE.
Topical Touches	...	197
Some Aspects of the Housing Question	...	198
Athy Waterworks	...	205
A New Universal Woodworker	...	206
LEADING ARTICLE :—		
The Bacterial Purification of Sewage	...	209
COMMENTS :—		
The New Joint Stock Companies' Bill	...	210
Mullingar	...	210
Building News	...	212
Government Loans and Grants for Building Works and Technical Education	...	217
Competition for Labourers' Cottages	...	217
Engineering Items	...	225
Correspondence	...	225
Imports	...	225

THE BACTERIAL PURIFICATION OF SEWAGE.*

We have from time to time made reference to the ever-growing quantity of literature on the subject of sewage disposal, and the multiplicity of systems devised and developed within recent years. The matter is one of the chief engineering questions of the day, and the Government has recognised that fact by the appointment of the Royal Commission on sewage disposal. So much, therefore, has been written on the subject, and so much has appeared in our own columns from time to time, that we should ordinarily hesitate to make reference at any length so soon again. There is, however, another aspect of the question which, although it has, no doubt, a considerable literature of its own, has not become nearly so "thrashed out" as the sewage disposal question, taken as a whole. We refer to bacterial purification in particular, and differentiate between it and sewage disposal in general. Any consideration of sewage disposal nowadays must necessarily include bacterial purification; in other words, the one term comprehends the other, though they are not interchangeable. We may be pardoned this somewhat diffuse explanation, which we offer lest a hasty reader might accuse us of overdoing this question of sewage disposal. We, therefore, wish to make clear the difference between a consideration of sewage disposal and one purely of bacterial purification.

To properly deal with the subject of modern methods of sewage disposal, one must possess acquaintance with the chemical and scientific principles of bacteriological processes.

As we have said, bacteriology, as applied to sewage treatment, has already a considerable literature of its own; but it is mainly written from a bacteriologist's point of view, and the number of books dealing with the subject in a fashion readily understood by and available to ordinary engineers, and presented in such a form as to be convenient for students, is not large. It is, of course, not necessary that an engineer should have the

same degree of acquaintance with the matter as a professional bacteriologist—it is not his province. It is sufficient if he knows enough of the subject to enable him to apply the results skilfully and intelligently in his work.

The Sanitary Publishing Company, of London, and Messrs. John Wiley and Sons, of New York, have lately published the third edition of a work by Samuel Rideal, D.Sc. (Lond.), etc., etc., entitled "Sewage and the Bacterial Purification of Sewage." This work seems to us just to fill the gap which hitherto existed. The fact of the work running to a third edition within a very few years proves its popularity, and in the present edition Mr. Rideal claims to have incorporated further experience gained during the past five years, and to have embodied the conclusions of the Royal Commission as made known from time to time.

In his introduction Mr. Rideal gives a considerable amount of particulars respecting the general history and development of bacterial systems, and notes the characteristics of the bacteria. He quotes an instance of the vitality of certain organisms, which were found by Professor Pfuhl to have been carried in one hour through twenty-six feet of gravel soil, a result which goes far to shake the ordinary belief in the efficiency of filters as purifiers; while he gives another instance in which the supply of a tube well was contaminated by certain cultures of bacteria placed in the soil fourteen feet away from the top of the well. He also sketches briefly the various systems of sewage disposal, both modern and those more or less obsolete; and certain particulars relating to the discharge of sewage untreated into the sea or into rivers, and from which it is made evident that, provided the dilution is large, sewage may be safely discharged into rivers, with the certainty of speedy purification. Mr. Stearns, Engineer to the Massachusetts Board of Health, concluded that if the volume of sewage discharged crude represented more than 2.5 per cent. of the total, it could not be so discharged into the river, but that if less than $\frac{1}{100}$, it may be admitted without any doubt. Mr. Rideal notes, however, that American sewage is much more dilute than ours, the average water supply per head per day in America being 135 gallons. It is further pointed out, however, by Dr. Dupré, that dilution with thirty volumes of fully aerated water brings about ultimate purification, and Rideal adds that he has known considerably less proportion to be effectual. Notwithstanding these facts, we are told that many of the rivers in America are "no better than neglected sewers."

Sea water is a less satisfactory medium for the purification of sewage than river water, partly because it contains a smaller number of water bacteria, and partly because of the tidal disturbance interfering with the organisms in doing their work; and the specific gravity of sea water and sewage differing, the latter being lighter, it is essential that the point of discharge should be below the surface, in order that mixture may occur by agitation.

Chemical analysis is dealt with in some detail, two chapters being devoted thereto, and this aspect is, undoubtedly, one of much interest.

The main interest of the work, however, is centred in the two chapters on "Bacteria and other Organisms in Sewage," and "Chemical Changes produced by Bacteria," respectively, together with three chapters on "Bacterial Purification," which give the history, application, and effect of bacterial treatment.

The variety and number of organisms present in sewage is enormous, and almost incredible, amounting to as much as 2,500,000 per c.c. at the Crossness London Outfall.

As, of course, the myriads of organisms present cannot be measured or dealt with direct, a system of measured dilution has to be adopted. The samples are collected

* Sewage, and the Bacterial Purification of Sewage. By Samuel Rideal, D.Sc. (Lond.) Third Edition. London: The Sanitary Publishing Co., Ltd. New York: John Wiley and Sons, 1906.

in sterilised glass-stoppered or rubber-stoppered tubes or bottles holding about 100 c.c. filled, placed in airtight tins, packed in ice, and despatched to the laboratory. The object of the ice is to retard the multiplication of the organisms. At the laboratory it undergoes the process of careful and admeasured dilution, one c.c. of the sample is placed in a tube with 99 c.c. of sterile water, one c.c. of this dilution (corresponding to 0.01 of the original) is in turn diluted with the sterile water, and so on, corresponding practically to the dilution or reduction of the original or "mother" tinctures in homeopathy. Thus only can the organisms be dealt with, and, of course, the application to the original of the resultant analysis is merely a matter of arithmetic.

Cultivations are then made with the media usually employed by bacteriologists.

Plate cultures are almost invariably resorted to. It is not here necessary or possible for us to describe the process of cultivation, which in no way differs from cultures made for other purposes.

The anaerobic cultures have to be made under slightly different conditions, and are usually cultivated in some gas which absorbs oxygen.

Some very curious and important results of observations and experiments made with cultures are recorded, but they are by no means uniform. The Chorley experiments for the Royal Commission gave the following results :—

	Bacteria per c.c.
Crude sewage	4,084,827
Sewage precipitate ...	1,344,925
Tank effluent	398,695
Filter effluent	45,755

In the beds at Leeds it was noticed that a multiplication of organisms occurs in the sewage during its passage from the entrance to the works on to the beds.

Other experiments were made to test the effect of lime upon the sewage. The result seems to show that the addition of lime prevents the multiplication. Two cases of limed sewage are given. In the one the number of micro organisms remained almost the same; in the other they decreased by over 50 per cent., while in the unlimed sewage they practically trebled. The dilutions employed varied from 1 in 1,000,000 for sludge, to 1 in 10,000 and 1 in 100 for filter effluents.

Mr. Rideal gives a list of some of the bacteria occurring in sewage, which he divides into "obligatory anaerobes" and "facultative anaerobes or aerobes." These, in turn, are sub-divided into "liquifying gelatine," "non-liquifying," and "slightly liquifying," according to their behaviour under culture. The characteristics of some are given, and diagrams of some of the chief.

When sewage reaches that stage that it is fit to go to the oxidising filters, the exclusively anaerobic organisms disappear, or become reduced in number, and are replaced by other varieties.

Dr. Rideal points out the number of bacteria present in an effluent furnishes little information as to its character, because certain of them can multiply enormously even in sterilised distilled water—and for other reasons which he gives.

Dr. Rideal draws attention to other purifying agents besides bacteria; water worms, birds, fish, and rats, and minute insects, as well as the worms peculiar to filters.

As regards the important changes produced in sewage by tank treatment, Dr. Rickard, of Exeter, made a rather valuable experiment. He introduced an emulsion of the typhoid bacilli into a tank, and instead

of increasing, they rapidly diminished, until after fourteen days less than one per cent. of those introduced were surviving.

Filtration at Exeter removed about 90 per cent. of the typhoid bacilli. Dr. Houston, in a report to the London County Council, implies that the typhoid bacillus, or the *cholera vibrio*, suffers diminution primarily in the sewers, and secondarily in the choke-beds.

In passing to the subject of the chemical changes produced by bacteria, Dr. Rideal observes that, considering that thirty-five years ago upward filtration gave such satisfactory results, it is difficult to understand how and why chemical precipitation came to be so extensively, and almost exclusively adopted.

COMMENTS.

The New Joint Stock Companies Bill.

The Government is at present piloting through the House of Lords a Bill dealing with Limited Liability Companies, which is designed to remedy the defects of the Act of 1900. Several of the features of this Bill will be of great value to the investing public, as its keynote is publicity. Under the existing law it is possible for the promoters of prospectusless companies to dispose of their shares by "making a market" in them on the Stock Exchange without full disclosure of all the facts relating to their promotion. By the new Bill persons concerned in such enterprises will be compelled to file with the Registrar of Joint Stock Companies all the information they would be required to give under the Act of 1900 if they issued a prospectus, and that information will be open to the inspection of the public. Among the other clauses in this measure is one which proposes to give the courts of law power to relieve directors from liability for breach of duty where the Court is satisfied that the directors involved have been guilty of nothing more than honest oversight or error of judgment. There are also provisions compelling companies registered abroad to make certain returns, which will be much appreciated by the trading community in general. Although the Bill is, on the whole, a salutary one, there is one of its provisions which, in our opinion, ought never to pass the House. This is a clause requiring that every company shall file annually at Somerset House a balance-sheet duly signed by its auditors. Such an enactment would, of course, be of some advantage to creditors, but would be calculated to inflict great injury on joint stock concerns generally, whilst being a positive injustice to private liability companies. Why should a limited company be compelled to disclose the figures of its balance-sheet to all and sundry, including trade competitors, when private trading concerns go scot free? The Bill in the main follows the lines of the report of the Departmental Committee, and may become law during the present session.

Mullingar.

A large new mansion, which it is stated will cost some £40,000, is to be erected near Mullingar for Colonel Magahan. The architects are Messrs. Warwick and Hall, of London.

The following appears in the "Irish World and American Industrial Liberator" of the 17th November, 1906:—

"Daniel O'Dea, the millionaire, who died recently at Rouen, France, was always a practical Catholic. To the Church he gave liberally, one of his gifts being a chapel at Long Branch, which he built and endowed. Five thousand dollars of his money aided in building the Bishop's Chapel, Buffalo, and by his will he has bequeathed £10,000 to build a Catholic Church in his native town, Kildysart. The deceased was born at Croviahan, in the immediate vicinity of Kildysart, in the year 1844, and in the dark days of 1845, when the levelling of Irish homesteads by the landlords was rampant, he emigrated to America with his parents at the age of twelve months."

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Estimates given for Fibrous Plaster Decorations, Plastering, Concrete, and Granolithic, in any part of the country.



Athlone.—The Urban District Council invite tenders for the supply of four, six, nine, and twelve inch best glazed stoneware drain pipes, and also for bends, junctions, cement (Irish and English manufacture at per ton), deal boards, scantlings and sheeting. Particulars can be had from Mr. P. J. Prendergast, A.M.I.C.E.I., Council's Surveyor, and tenders must reach the Clerk of the Council at the Town Hall, Athlone, on Wednesday, 27th inst.

Ballina.—At the meeting of the Ballina District Council on Monday a discussion took place regarding the appointment of an engineer under the Labourers Act. At the previous meetings of the Council Mr. M. J. O'Boyle, Ballina, assistant to Mr. W. P. Orchard, Co. Surveyor for North Mayo, was appointed. The Local Government Board now wrote stating that the testimonials furnished on behalf of Mr. O'Boyle were not sufficient to satisfy them that he had sufficient knowledge and experience for employment as engineer. It would, therefore, the communication concluded, be well for the Council to advertise for an engineer possessing the qualifications prescribed by Rule 50 of the Labourers Order, 1906. After a lengthy discussion, a resolution was adopted stating that as Mr. O'Boyle had passed the necessary examinations, the Board considered him competent to act as engineer under the Labourers Acts.

Belfast.—We understand that the Great Northern Railway have under contemplation the erection of a large hotel in Belfast with about 400 bedrooms.

The Jaffé Memorial Schools, recently erected at the corner of the Cliftonville and Antrim-roads, were formally opened by the Dowager-Marchioness of Dufferin and Ava. The schools are a gift by Lady Jaffé as a memorial to her parents. The new buildings are placed in the centre of the ground, at a distance set back eighty feet from the road, and a large playground enclosed with a wall occupies the rear. Advantage has been taken of the open ground to provide ample light and air by numerous windows. The principal approach to the school premises is by a wide cutstone doorway in the main front which leads into a spacious vestibule with four large classrooms on ground floor. The other entrances are provided to the playground. From the vestibule rises the principal fireproof staircases to the first floor, which contains a fine apartment forty-seven feet long by twenty-eight feet wide, with large platform at one end. The ceiling is carried by a series of principals with iron tie-rods. An additional iron staircase is also provided to be used in case of emergency. Two classrooms are attached, one of which is fitted up as a physical laboratory, with experimental table and apparatus. Special provision is made for keeping of school requisites in two storerooms on this floor. All sanitary arrangements are provided in a separate annex approached from main staircase, and have been executed, together with the gas fittings, by Mr. John Dowling. Heating is effected by a series of Musgrave's patent stoves placed in the various classrooms, which are also ventilated. A simple treatment of Georgian architecture has been adopted, carried out with rough dashed brick walls and stone sills and copings. A feature is made of the central gable, which contains a moulded panel with the words:—"Jaffé National Schools," in raised letters; above this is a stone finial and gilt weather vane. A polished Aberdeen red granite tablet in the vestibule commemorates the gift of the schools by Lady Jaffé as a memorial to her parents. The approach to the schools and the fine playground at rear will be covered with ferrumite pavement, and the space in front will be laid out with shrubs, etc. The contractors were Messrs. Courteney and Co., and the architects Messrs. Young and Mackenzie, Belfast.

Baltinglass.—The Rural Council will, to-day, consider tenders for building 3 single labourers' cottages and for fencing 5 plots. Tenders are to be posted so as to reach the Council at 11 o'clock a.m.

Ballinasloe.—The District Lunatic Asylum have applied to the Local Government Board for their consent to the borrowing of £500 for the purpose of defraying legal expenses, etc., in connection with the erection of a new hospital block at the Asylum.

Co. Clare.—The big scheme for labourers' cottages, to be erected in the Kilrush Union, will afford much employment. Another meeting was held in the Boardroom on Monday, 11th inst., when another batch of electoral divisions, were certified for. In all, the schemes when completed, will not be far short of 200.

Carrickmacross.—Carrickmacross Urban Council have in contemplation to call on the Local Government Board to advance sufficient money to build twelve artisans' dwellings in the Urban District.

Dublin.—The Public Libraries Committee of the Corporation of Dublin invite tenders for proposed additions to the Public Library at Charleville Mall. Tenders to be lodged on the 30th inst.

Donemana.—Tenders are invited for the erection of a hall in Donemana. Tenders will be received up to Monday, 25th inst.

Dunfanaghy.—Tenders invited, on or before 23rd inst., for building a parochial hall. Plans and specifications may be obtained at Mr. R. E. Buchanan's office, Castle-street, Londonderry.

Derry.—Tenders are invited for building villa at Victoria Park, Derry, for Mr. J. M'Killip. Tenders to be delivered on 27th inst. Messrs. R. E. Buchanan and Co., Castle-street, are the architects.

Galway.—Estimates are invited for the building of a new chapel with structural alterations to existing chapel connected with the Magdalen Asylum. Tenders are to be delivered on the 25th inst. to the architects, Messrs. Anthony Scott and Sons, 34 Lower Sackville-street, Dublin.

The Galway Urban Council invite tenders for excavating and laying about 2,000 lineal yards of six-inch cast-iron water main, in accordance with the specifications to be seen at the office of Mr. Binns, C.E., Eyre-square, Galway. Tenders must be lodged in time for the Council's meeting on Thursday, 28th March.

Kingstown.—A resolution was proposed at the last meeting of the Kingstown Urban Council, by Mr. W. A. Evans, that the lowest tender for the erection of the Royal Victoria Baths be accepted, and that the work be pushed forward as rapidly as possible. In moving this resolution he explained that the tender to which he referred was the revised tender of Mr. Alexander Fraser. Mr. J. J. Kennedy said that if Mr. Evans's motion meant anything it was the acceptance of the lowest tender received for the work in reply to the Council's advertisement—namely, Mr. Fraser's estimate at £10,300. The revised specification had never been before the Council for discussion, although certain very important reductions had been made in it. It was obvious, said Mr. Potterton, that what the motion contemplated was the acceptance of Mr. Fraser's tender as reduced from £10,300 to £8,360. In order, however, to clear up all doubt, he moved an amendment, which was adopted:—"That the lowest tender of Mr. Alexander Fraser, at £8,638, be accepted, and that, subject to the approval of the Local Government Board, the contract be prepared and the work pushed forward as rapidly as possible. Mr. John M'Cullagh said it was most desirable to have the erection of the Royal Victoria Baths proceeded with as soon as possible, because unless something was done at once to attract visitors to the district he did not know where the townspeople would eventually find themselves.

Kells.—A meeting was recently held to consider what practical steps should be taken to procure a public hall, so much needed, in Kells. After a long discussion, a small committee was appointed to make inquiries in towns about the same size and population as Kells, in which public halls are built, as to the cost of, and the means by which such halls were erected.

Tenders have been invited for the building of Chamberlainstown House, Kells, Co. Meath, for Major Chamberlayne, from drawings and specifications prepared by Messrs. W. H. Byrne and Son, architects, 20 Suffolk Street, Dublin. The quantity surveyor is Mr. J. Graves Clayton, North British and Mercantile Buildings, Nassau Street.

Kenmare.—Messrs. J. and R. Thompson, Ltd., of Dublin, have secured a contract from the G.S. and W. Railway for various alterations and additions to their hotel at Kenmare, Co. Kerry. The contract price is slightly over £1,000.

New Ross.—To-day, the 23rd inst., the Board of Guardians of New Ross Union will receive proposals for repairing and keeping in repair for a period of three years ending the 31st March, 1910, the roofs of the several buildings and offices known and described at the New Ross Workhouse.

Tuam.—The Galway County Council have applied to the

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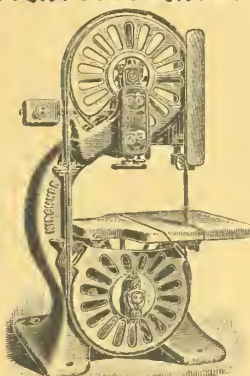
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THE MANAGER.

Local Government Board for their sanction to the proposal to borrow £160 for the purpose of building a bridge over the Carnacarron river in the Tuam Rural District.

Tullamore.—The Urban District Council will, on the 3rd prox., consider tenders for building twenty working-class lodging houses, in two rows of fourteen cottages each, at Puttaghan, Tullamore. Tenders are to be lodged not later than 7 o'clock p.m. on the date mentioned.

THE EXTRAORDINARY PROCEEDINGS AT KILLARNEY.

Action of the Local Government Board.

In our last issue we referred to the extraordinary proceedings at the meeting of the Killarney Rural District Council, at which it was decided not to open the tenders received in reply to advertisements for the position of engineer. At the last meeting of the Council, a letter was read from the Local Government Board stating that the procedure of the Council is open to the most serious objection. Their action, in issuing advertisements inviting persons to apply for the position of engineer in relation to the proposed new scheme, and afterwards on the day appointed for the consideration of such applications, deciding not to open the tenders received, but to appoint a person (who may or may not have so applied), at the maximum rate of remuneration, is calculated to discourage, if not altogether do away with, legitimate competition. Such proceedings, if permitted, could not be but prejudicial to the interests of the ratepayers of the rural district. In the circumstances, the Board must decline to sanction the proposed appointment of Mr. J. Gallivan as Council's engineer, and they, accordingly, request that the Council will forthwith proceed to a new election of a person qualified for the position, in accordance with Rule 50 of Labourers (Ireland) Order, 1906.

It was decided to issue advertisements, and appoint an engineer under the Labourers' Acts at next meeting.

TENDERS.

NEW SWIMMING AND RECLINING BATHS AT KINGSTOWN FOR THE URBAN DISTRICT COUNCIL.

(Messrs. Kaye-Parry and Ross, Architects.)

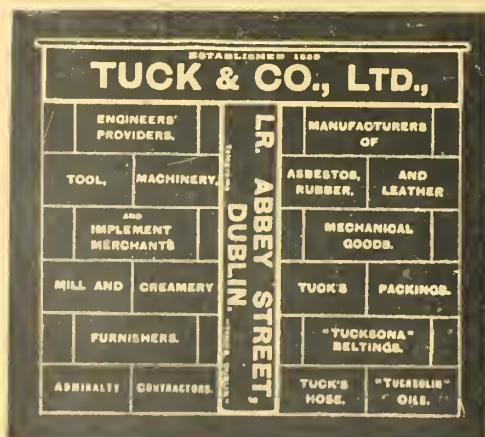
TENDERS RECEIVED.

Name.	Amount.	Period.
Messrs. J. and R. Thompson ...	£14,124 0 0	12 months.
Messrs. Alexander Hull and Co.	13,730 0 0	14 "
Messrs. Colten Bros ...	12,600 0 0	14 "
Mr. J. Hemmingway ...	11,679 0 0	14 "
Messrs. H. Pemberton and Sons	11,585 0 0	12 "
Messrs. McKee and McNally ...	11,400 0 0	14 "
Messrs. J. and P. Good ...	11,400 0 0	14 "
Messrs. McLaughlin and Harvey	11,300 0 0	12 "
Messrs. H. and J. Martin ...	11,971 0 0	12 "
*Mr. Alexander Fraser ...	10,300 0 0	12 "

* Accepted subject to some omissions and reductions.

A curious dispute has arisen in one of the large saw-mills in West Hartlepool. The mill has been working on three-quarter time, and the men contend that there is sufficient work for full time. The masters refuse to start full time, and the men have struck work in consequence.

After considerable experiments, which have been conducted since the first wood paving was laid in Southport in 1884, the Southport Highways Committee have come to the conclusion that creosoted Baltic red deal blocks give, on the whole, the best results, taking into account the first cost.



CONCRETE PRODUCTS.

The Improved Construction Company, of Strood, have recently introduced a new method for the production of concrete products, and a writer in a contemporary who had an opportunity of visiting the works of the company gives some interesting particulars of the new method of production.

The chief advantages claimed for it are:—

1. Great density and entire absence of voids or air bubbles.
2. Great tensile and compressive strength.
3. Uniform strength.
4. No hand mixing, measuring, or moulding.
5. Rapidity of manufacture.
6. Economy.

And the uses to which the new product can be put are practically unlimited, amongst the most interesting being roofing tiles, hollow beams, paving slabs, floor tiles, reinforced railway sleepers, pipes, and architectural work.

The products can be coloured to any tint, the colour being absolutely fast and unaffected by acids. By a simple process and with the use of a cementitious glaze, the materials can readily be glazed without firing. Any form of finish can be given to the face, one particularly interesting example being a very good rock face.

At Strood the demonstrating plant is in operation making paving slabs, building blocks, coloured and indented floor tiles, etc. The working of the plant is very simple, the efficiency of the manufacture depending chiefly upon a new form of vibrating-table, the action of which differs from that of any table previously constructed.

We hope in a later issue to have something to say to the new system.

IRISH LABOURERS' COTTAGES.

In this issue we are enabled to reproduce photographs of models of the three prize-winning designs selected in the recent competition instituted by the Local Government Board for Ireland. The prizes were awarded as follows:—

1st Prize, £50.—Mr. Sidney Moss, Eccles, Lancashire.

2nd Prize.—Mr. Roseman Burns, Serpentine Avenue, Dublin.

3rd Prize.—Mr. T. Manly Deane, A.R.H.A., Ely Place, Dublin.

In our opinion, neither the first nor second prize-winning designs are quite suitable for Irish country districts. The wide roofs, dangerous junction of same with flat slope, the two chimneys, casement windows, patent roofing material, and the cast concrete blocks, combine to render them unsuitable.

The third design, by Mr. Deane, is in every respect far and away more suitable; it presents no feature of any striking originality—indeed, it was hardly possible to evolve such, and follows a usual type of plan. It has the merits of a sensible plan, moderate roof span, is slightly, and, apparently, it is intended to use the familiar 18 inch masonry walls, dashed and with brick dressings.

All of the successful competitors have made their kitchens too small; they should be at least another couple of feet longer.

None of the competitors have seriously considered the question of cost, and none of the three designs could be built for £130, or, indeed, in some districts for less than £160-£190.

As exemplifying the growing value of land within easy reach of London, a plot of a little less than half an acre, situated on Cold Harbour Lane, Bushey, Herts, has changed hands at the rate of £1,200 an acre, equal to £4 per foot frontage, 150 feet deep.

We learn from an American contemporary that, in its efforts to collect duty, the United States Government sometimes compels the wilful waste of valuable material. There is, for instance, a duty on cigar boxes, which is secured by a regulation that every cigar box must carry a stamp. In order that the same box may not be used over and over again, one of the regulations of the Government enjoins that as soon as a cigar box is emptied it must be destroyed. Now, Spanish cedar, of which these boxes are made, is one of the most valuable of woods, and it seems as if the Government ought to be able to protect itself in some way if the cigar boxes were re-packed many times. There should certainly be some method of cancelling the stamp without destroying the box. This wilful destruction of valuable box material involves an annual loss of many thousands of dollars, and the fact that it is allowed is all the more puzzling, inasmuch as the forestry division of the United States Government is always declaiming against the waste of forest product.

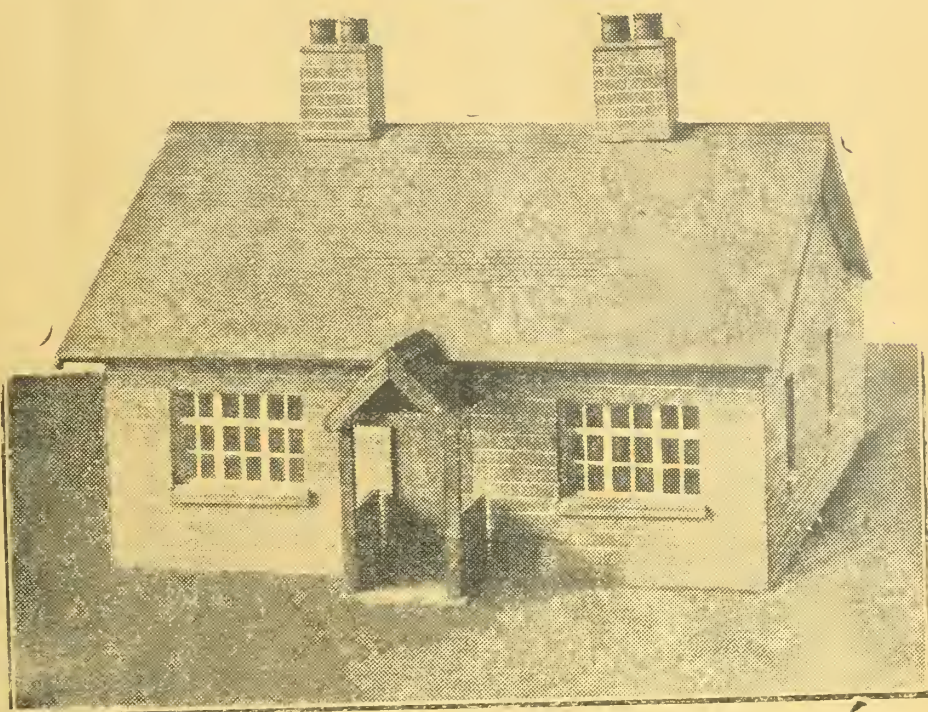
GOVERNMENT LOANS AND GRANTS FOR BUILDING WORKS AND TECHNICAL EDUCA- TION.

The Civil Service Estimates give particulars of the manner in which it is proposed to allocate the Irish Development Grant for the financial year ending 31st March, 1908. The estimated balance, which will remain to the credit of the account on 1st April next, is £122,553, which, with the annual grant of £185,000 now to be voted, brings the total amount available to £307,553. Of this sum it is proposed to spend £255,334 during the coming year, which includes the following:—

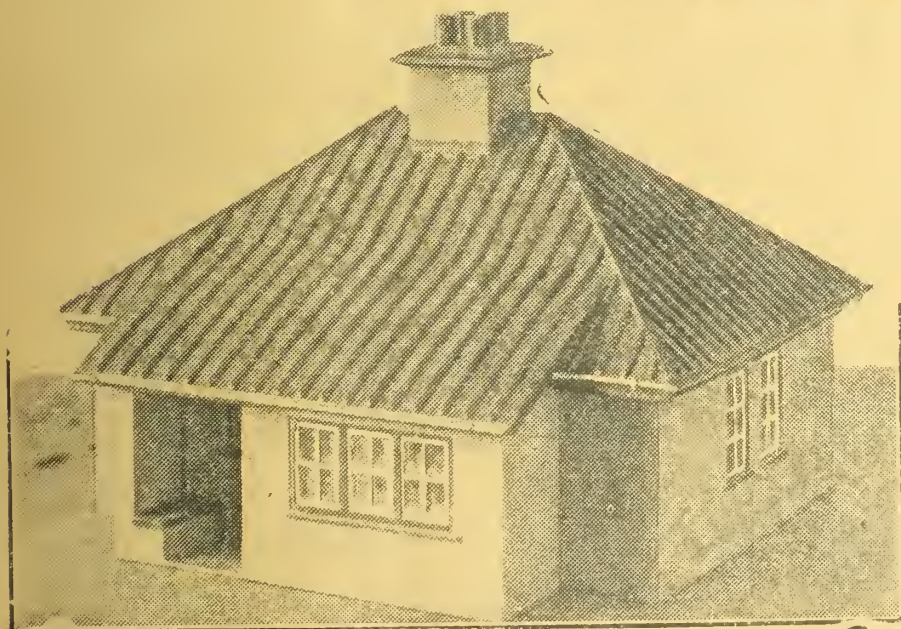
Payments prescribed under the Labourers (Ireland) Act, 1906, £76,000.

Marlborough Street Training College, under the Board of

COMPETITION FOR LABOURERS' COTTAGE S. The Three Prize Designs.



First Prize, Mr. Sidney Moss, Eccles, Manchester.



Second Prize, Mr. Roseman Burns, 13 Serpentine Avenue, Dublin.

National Education, £15,000, being the fourth instalment of a grant of £50,000 for the new buildings.

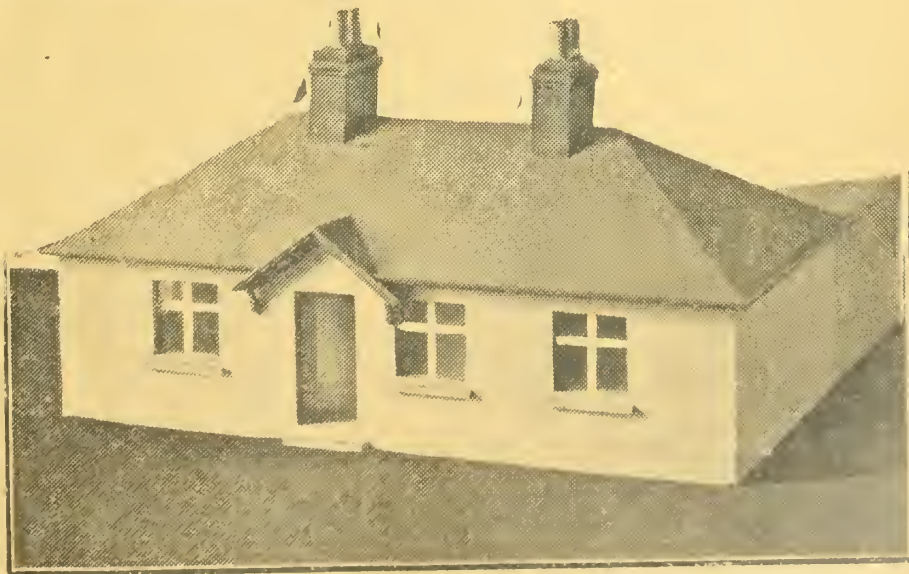
National School Buildings, £25,000, being the second instalment of the grant of £70,000 towards the cost of rebuilding necessitous National Schools. No portion of the sum voted for this service in 1906-7 has been spent.

£7,000 for Technical Institutions; £2,000 for Government Dredger; £12,000 for the Newry, Keady, and Tynan Railway, being the first instalment of a grant of £75,000 towards this object; £12,500 for the Tralee and Dingle Railway, being the second instalment of a grant, estimated not to exceed £23,500 towards the improve-

ment of the line and its equipment; £5,000 for the Cavan and Leitrim Railway, being the first instalment of a proposed grant of £24,000 for the extension from Arigna to Arigna Mines, and from Dromod to Rooskey; £6,216 for improvement works at Portavogie, Co. Down; £7,000 for Arklow Harbour, being the first half of a total grant of £14,000; £13,000 for Wicklow Harbour, being the balance of the Government Grant of £22,000, and £1,000 for engineering and architectural expenses.

A balance of £52,218 is to be carried forward to the following year's account.

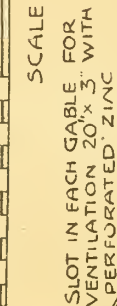
A significant observation is, that of the £70,000 voted for school building, no portion has been spent. This, of course, is due to the passing of loans for that purpose being at a standstill for some time past.



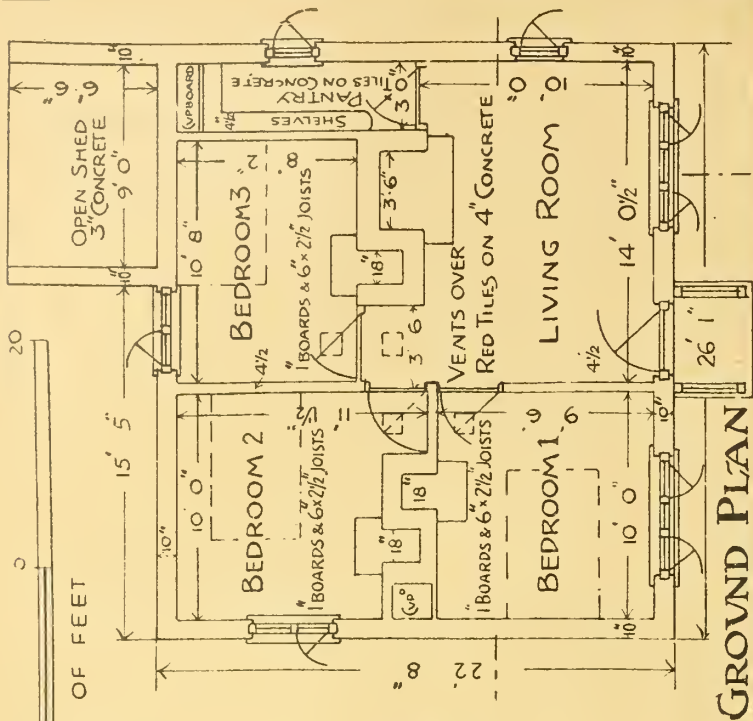
Third Prize, Mr. T. Manly Deane, A.R.A., Ely Place, Dublin.



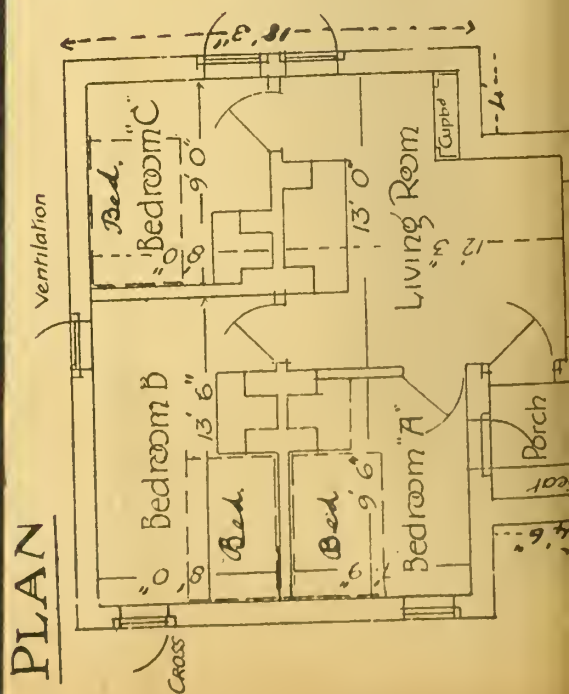
FRONT ELEVATION



SIDE ELEVATION

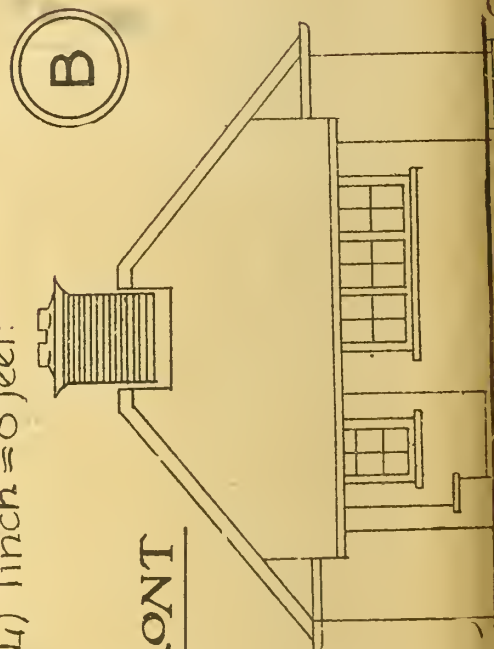


GROUND PLAN

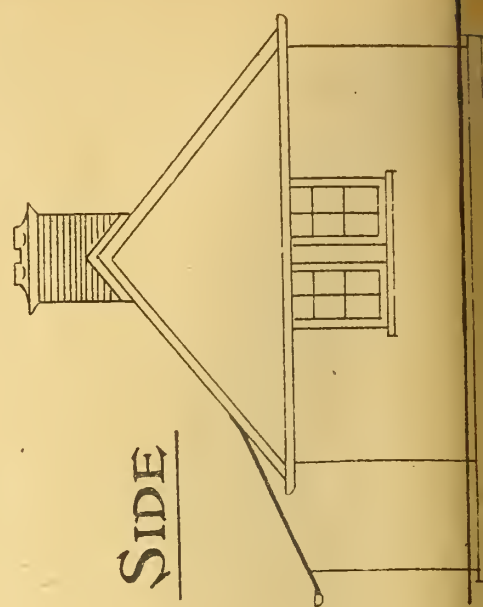


PLAN

SCALE) 1 inch = 8 feet:



FRONT



SIDE

OUR ILLUSTRATIONS.

St. John's Cathedral, Limerick.

We publish in our supplement of this issue an illustration of this fine work.

The building stands on historic ground. It was here that the Williamite troops were repulsed with dreadful losses, including the annihilation of the Brandenburghers, and of the Black Battery, which they then occupied; and it was here, too, the women of Limerick rendered such signal services to their fellow-citizens as to gain for them the immortal place their fame holds in history.

The Cathedral.

In 1856, during the Bishopric of the late Dr. Ryan, the work was begun from the designs of the late eminent London architect, Mr. P. C. Hardwicke, and consists of nave, aisles, transepts, high chapel or choir, and side chapels dedicated to the Blessed Sacrament, Our Lady, St. Joseph, and St. Vincent de Paul. The extreme dimensions, west to east, is 176 feet, across the transepts 124 feet, and height to ridge 80 feet.

The architect, owing to local circumstances, had to trust to large, simple forms for the effect of his building, rather than ornament or elaborate detail, and, judging by the effects of light and shade produced, he has succeeded in leaving to us one of the finest buildings produced during the latter part of the last century.

The walls and dressings throughout are of the local blue limestone, and all the work was executed by local artisans.

Tower and Spire.

The tower had been raised some 60 feet, and so remained until 1878, during the episcopacy of the late Dr. Butler, when Mr. M. A. Hennessy, then of Limerick, and now of Cork, was entrusted with the preparation of the designs for the completion of the tower and the spire.

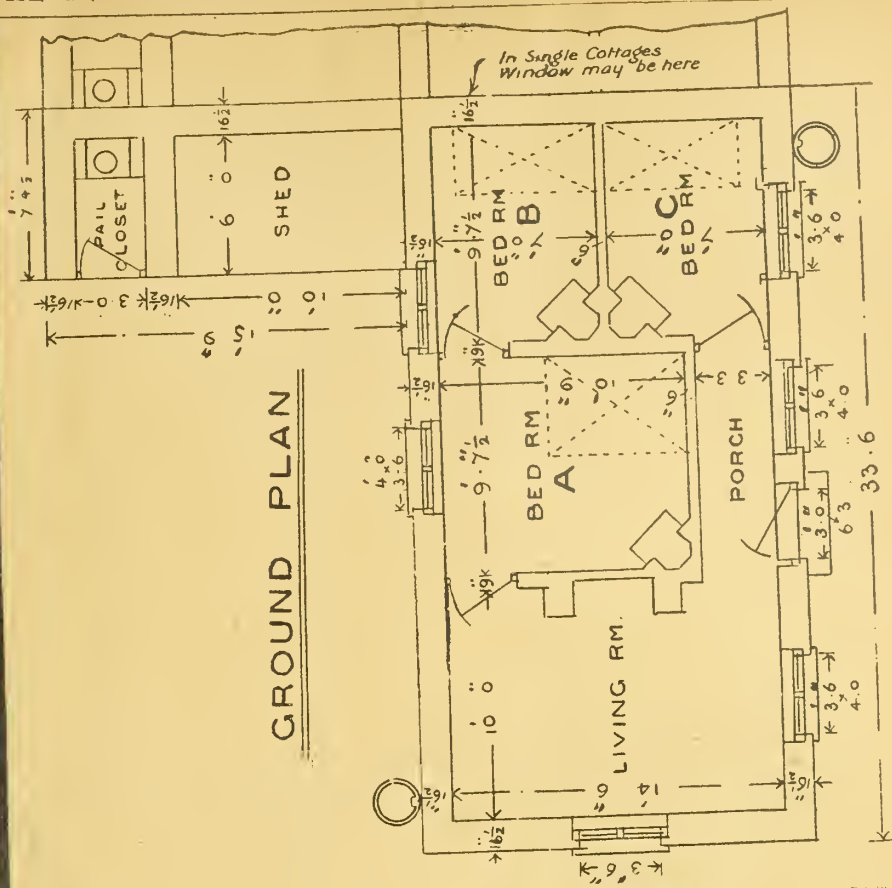
The following extracts are from Lenihan's History of Limerick, page 784:—

"Limerick, celebrating, in common with the whole Catholic world, the Golden Jubilee of the late illustrious Pius IX., embraces the opportunity to commemorate that glorious event by raising, under the invocation of Mary Immaculate, a great tower and spire to the Cathedral."

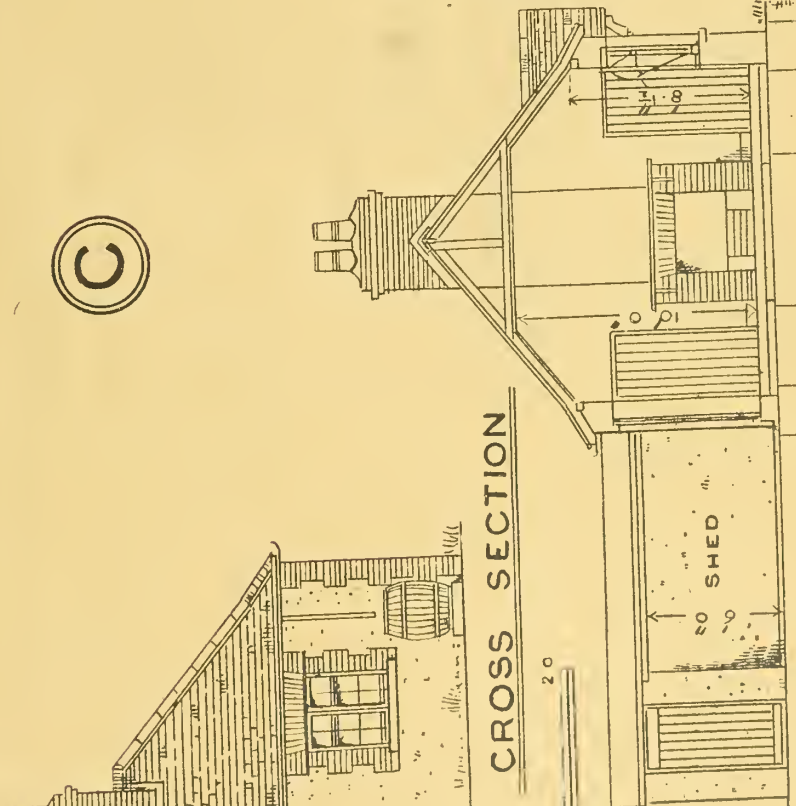
The design of the architect "was attended with magnificent success. It is remarkable for the richness and beauty of its own proportions, and also for the admirable manner in which the style and character of the existing structure were preserved. So perfect is the harmony of line detail and proportion, that one cannot fail to be impressed with the completed work as at once a glorious commemoration and an architectural triumph."

The tower and spire is the highest in Ireland, "the top of the cross being 275 feet over ground level; consequently, the new building raised over 200 feet of stone-work on the existing base."

Last year, under the patronage, and in presence of, the present distinguished Bishop of Limerick, Most Rev. Dr. O'Dwyer, the Golden Jubilee of the Cathedral was celebrated with full Church ritual and much civic rejoicing.

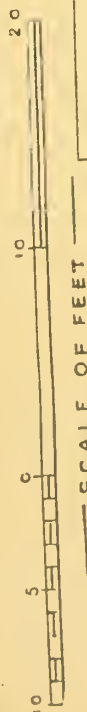
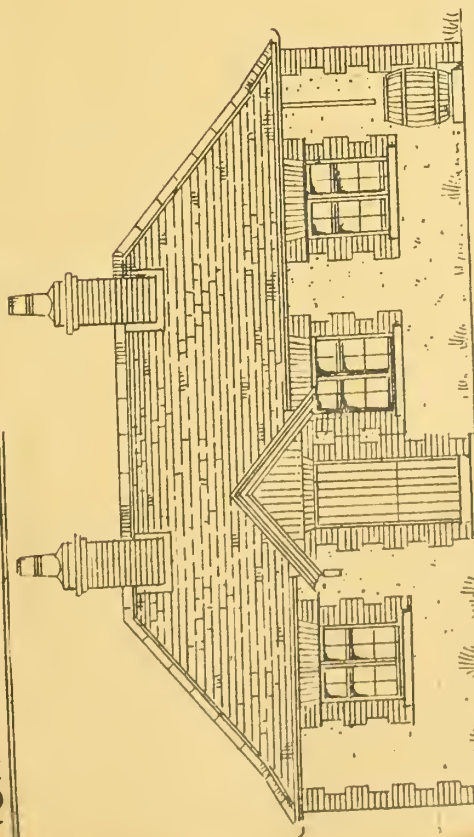


GROUND PLAN



CROSS SECTION

FRONT ELEVATION



COTTAGES, LOCAL GOVERNMENT BOARD, IRELAND.

TIMBER DRYING.

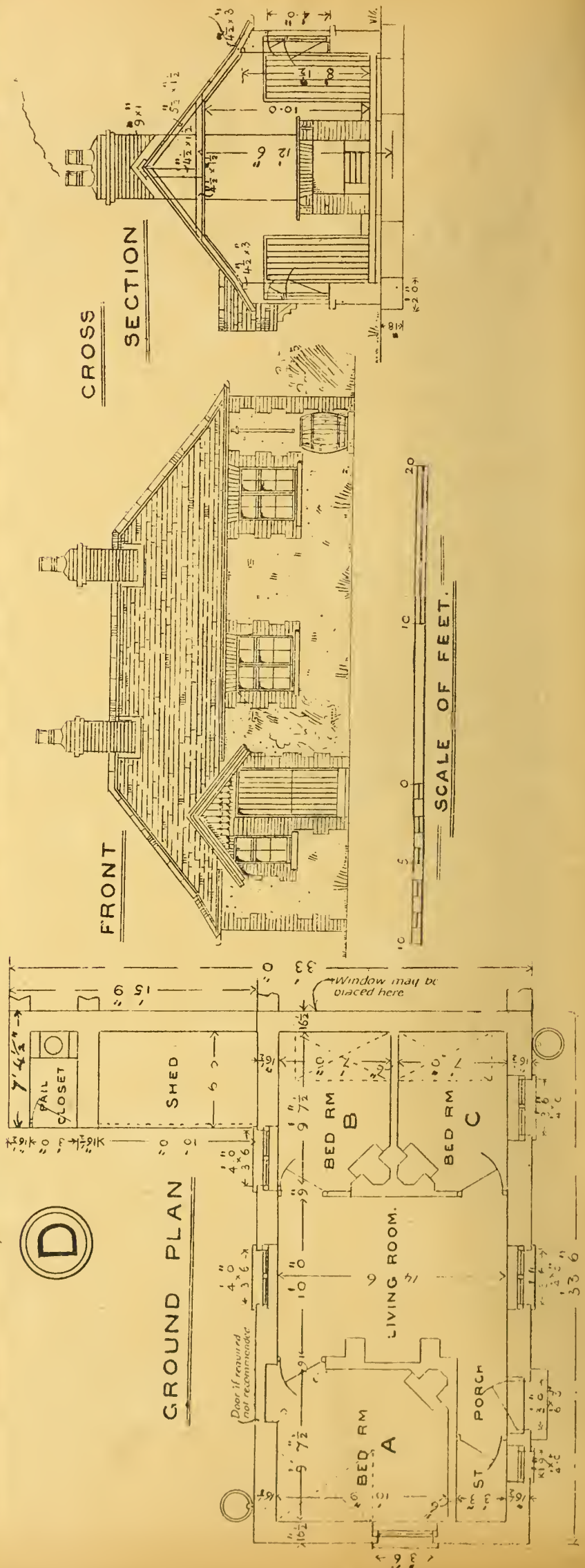
The Forestry Section of the United States Department of Agriculture has issued a pamphlet on the kiln-drying of hard woods. The publication contains such valuable information that we give below the salient features.

In drying wood, whether in the form of standard stock or finished product, the application of the requisite heat and circulation must be carefully regulated throughout the entire process, or warping and checking are almost certain to result. Moreover, wood of different shapes and thicknesses is very differently affected by the same treatment. Finally, the tissues composing the wood, which vary in form and physical properties, and which cross each other in regular directions, exert their own peculiar influence upon its behaviour during drying. With American woods, for instance, summer wood and spring wood show distinct tendencies in drying, and the same is true in less degree of heartwood as contrasted with sapwood. Or, again, pronounced medullary rays further complicate the drying problem. Plain oak and quartered oak require different treatment. Even in mahogany and similar tropical woods, which are outwardly more homogeneous, various kinds of tissue are differentiated.

On the living tree and in green wood there is a large amount of water. Part of this is closely held in the material of the cell walls, and cannot be removed without affecting the physical condition of the wood; the rest, which fills the pores of the wood, is free water. In drying, the free water within the cells passes through the cell walls until the cells are empty, while the cell walls remain saturated. When all the free water has been removed, the cell walls begin to yield up their moisture. Heat raises the absorptive power of the fibres, and so aids the passage of water from the interior of the cells.

A confusion in the use of the word "sap" is to be found in many discussions of kiln drying; in some instances it means water, in other cases it is applied to the organic substances held in a water solution in the cell cavities. The term is best confined to the organic substances from the living cell. These substances, for the most part of the nature of sugar, have a strong attraction for water and water vapour, and so retard drying, and absorb moisture into dried wood. High temperatures, especially these produced by live steam, appear to destroy these organic compounds, and, therefore, both to retard and to limit the reabsorption of moisture when the wood is subsequently exposed to the atmosphere.

Air-dried wood, under ordinary atmospheric temperatures, retains from 10 per cent. to 20 per cent. of moisture, whereas kiln-dried wood may have no more than 5 per cent. as it comes from the kiln. The exact figures for a given species depend in the first case upon the weather conditions, and in the second case upon the temperature of the kiln and the time during which the wood is exposed to it. When the wood that has been kiln-dried is allowed to stand in the open, it apparently ceases to reabsorb moisture from the air before its moisture content equals that of wood which has merely been air-dried in the same place and under the same conditions.



ENGINEERING ITEMS.

Cork.—The Waterworks Committee of the Borough Council invite tenders for the supply of such quantities of Spigot and Faucet water supply pipes as they may order during the year ending 31st March, 1908. Tenders close on 1st prox.

Carrickmacross.—At the monthly meeting of the Carrickmacross Urban Council, a letter was read from the Local Government Board in connection with the appointment of Mr. Patrick Duffy as Town Surveyor, to the effect "that from the information before them they do not consider Mr. Duffy is competent to discharge the important duties of Town Surveyor, and therefore cannot give their approval to the appointment until they have further satisfied themselves." The letter was initialled.

Clones.—Mr. J. Kelly has been appointed town surveyor, subject to the approval of the L.G.B., for a period of twelve months.

Galway.—The Galway Harbour Board, at their fortnightly meeting on Tuesday, decided to increase the salary of their engineer, Mr. W. N. Binns, to £100 a year.

Mr. Alfred Cowlshaw, Lea Hurst, Galway, is taking up the late Mr. Perry's private practice. This is, no doubt, an opportune time for so doing, as the new county surveyor is to be restricted to county work.

Keady.—At a meeting of the Keady (Co. Armagh) Urban Council, notice was given of a motion to apply to the Board of Trade for a licence to supply electricity for public and private purposes.

Limerick.—On Thursday, 14th, the Town Clerk received from the L.G.B. a communication sanctioning the proposed borrowing of £5,500 for the purpose of extending the electric lighting of the city, and making additions at power house.

Wicklow.—Tenders are invited for sheet-piling and repairing the West Pierhead of Wicklow Harbour, in accordance with plan and specification prepared by Mr. John Pansing, A.M.Inst.C.E.I., Wicklow, from whom full particulars can be obtained. Tenders addressed to the Chairman, Wicklow Harbour Commissioners, to be lodged not later than 11 a.m. on 19th inst.

CORRESPONDENCE.**Killaloe Slates.**

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—Might I say a few words about Killaloe slates; and their use?

They are excellent material, but the company has all along been making the mistake of cutting them too large and fine, to compete, I suppose, with Welsh slates, which are a totally different material.

Killaloe slates should be left as rough, and thick, and as small as nature intended them to be, then properly fixed, and they would give a fine effect, far nicer than the best Welsh slates.

Owing to the practice of using them too large and thin, slaters dislike them because they smash in dressing and nailing, and great waste ensues.

There are lots of slates in Ireland far better than the native slates the Scotch use. All that is wanted is to cut and fix them as the Scotch do. The finest houses about Edinburgh, and other Scotch cities, are covered with slates not much larger than the size of my two hands.

Look at Sir Horace Plunkett's new roof at Foxrock. What a beautiful roof it is! Unfortunately, foreign slates have been used there. Killaloes, however, if used in the same way, would have looked as well.—Yours truly,

D. W. MORRIS, Surveyor.

68 Harcourt Street, Dublin
8th March, 1907.

IMPORTS.**Port of Dublin.**

March 6th—Per Lady Martin, from London, 590 sacks cement, W. and L. Crowe, Ltd.

March 7th—Per Harrier, from Bangor, 75 tons slates, T. and C. Martin, Ltd. Per Bangor, from Newcastle, 340 tons cement, N. McNaughton and Co.

March 8th—Per Glendun, from Middlesboro', 300 tons cement, J. P. Corry and Co.

March 11th—Per Bengore Head, from West St. John, 10,009 pcs. firewood, 12,005 pcs. deals, to order.

March 12th—Per Pennant, from London, 350 tons cement, W. and L. Crowe, Ltd.

March 13th—Per City of Brussels, from Antwerp, 55 cases window glass, H. Sibthorpe and Son; 6 do. do., De Greele, Houdset and Co.; 55 do. do., Hoyte and Son; 32 do. do., P. Ceppi; 126 do. do., Brooks, Thomas and Co., Ltd.; 14 do. do., J. Hall and Sons; 30 do. do., T. Dockrell, Son and

Co., Ltd.; 100 do. do., T. and C. Martin, Ltd.; 3 do. do., J. Arigho; 30 do. do., L. Lepersonne; 10 do. do., Wm. Martin, Son and Co.; 1 case plate glass, Plate Glass Co.; 130 steel joists, 15 cases marble, to order. Per Aladdin, from Ghent, 8,803 bags cement, to order.

March 14th—Per City of Dortmund, from Hamburg, 2 crates slates, to order; 50 tons asphalt, John Bernhardt and Sons, Ltd.

March 15th—Per Nephrite, from London, 700 tons cement, T. and C. Martin, Ltd.

March 19th—Per Lord Charlemont, from Baltimore, 900 doors, 228 pcs. oak lumber, 58 tons roofing slates, to order.

The number of THE IRISH BUILDER Stand at the Building Trades Exhibition at Olympia (April 6th to 20th) will be 254, Row T.

CONTRACTS.**COUNTY BOROUGH OF CORK.****CONTRACT FOR CAST IRON WATER SUPPLY PIPES.**

The Waterworks Committee hereby invite Tenders for the supply of such quantities of Spigot and Faucet Water Supply Pipes as they may order during the year ending 31st March, 1908, in accordance with specification and subject to conditions prepared by the City Engineer, including delivery to the Corporation Stores, or to any part of the city in which the pipes may be required in connection with works then in progress.

Forms of Tender and Specification may be obtained on application to the undersigned, by whom sealed tenders, endorsed "Tender for Water Pipes," will be received not later than Monday, 1st April, proximo. Tenders will only be received from employers of regular labour who pay Trades Union wages, and none will be considered that are not in the prescribed tender form.

Dated this 9th day of March, 1907.

(By Order),

D. F. GILTINAN,

Secretary of Committee, etc.

HOUSING OF THE WORKING CLASSES ACT.**NOTICE TO CONTRACTORS, BUILDERS, AND OTHERS.****TULLAMORE URBAN DISTRICT.**

At their meeting on the 3rd day of April, 1907, the District Council of Tullamore will consider Tenders for Building twenty-eight Working-Class Lodging-houses, in two rows of fourteen cottages each, at Puttaghan, Tullamore.

A Contractor must tender to erect not less than one row of cottages.

Plans and Specifications and Tender Forms for the works can be obtained from the Clerk to the Urban District Council, and tenders are to be lodged in his office not later than 7 o'clock p.m. on the day above-mentioned. The tenders must be made on the official forms, and be signed by the person proposing to execute the work, and contain the names and addresses of two solvent persons who are willing to join with him in a bond for the execution of the work of an amount of double the sum mentioned in the tender. Intending contractors should consider the plans and specifications carefully, and inspect the sites before tendering.

(By Order),

G. J. GRAHAM,

Clerk of Council.

Dated this 9th day of March, 1907.

BUILDERS and CONTRACTORS wanted to Estimate for Erection of Terrace of Small Houses. Plans and Specification on application to P. 233, "Irish Builder" Office.

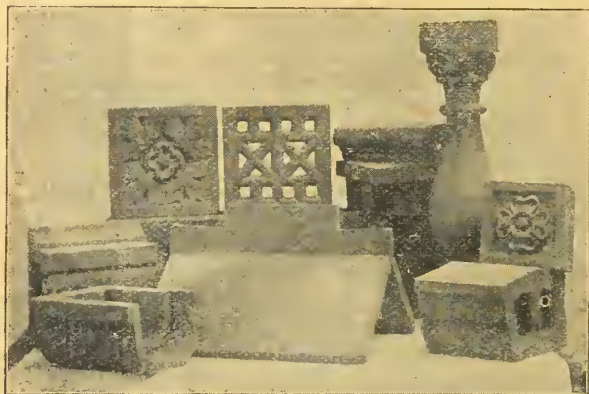
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Ridge Tiles, Arches, Window Sills, Window Heads and
Lintels, Mullions and Jambs, Chimney Pots,

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Apply—45 Fleet Street, DUBLIN

Telegrams: "BRICKS, DUBLIN."

Telephone 822

SAFE.—Wanted, Second-hand Burglar-Proof Safe
Size about 1 ft. 6 in. deep x 2 ft. 8 in. wide, 3 ft. 6 in. high.
BUTLER, 12 Dawson Street.

FOR SALE, Pocket-Case Electrum Needlepointed
Drawing Instruments, containing spring bows, com-
passes, dividers, two pens; 19s. 6d; approval. Aver-
Fritwell, near Banbury.

DRAFTSMAN.—Wanted, temporarily, Draftsman
in Dublin Architect's Office; quick, neat worker; o-
Assistant wishing evening work would suit; stat-
terms. Reply "Architect," "Irish Builder" Office.

PARTNER WANTED in Building Contractor's long
established going-concern in Dublin. Plant and
Machinery up to date. To a young man of ability
experience, and energy, able to take the place of re-
tiring principal, this is an excellent opportunity. Re-
plies to state full particulars, give references, and
amount of capital, to Box 211, care Eason and Son
Advertising Agents, Dublin.

TO BRICK AND POTTERY MANUFACTURERS.

FOR SALE CHEAP,
VALUABLE BRICK AND SANITARY PIPE WORKS
SITUATED IN THE NORTH OF IRELAND.

There is an abundance of surface clay suitable for the
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of brick, also fire-clay for the production of glazed pipes and
Sanitary ware, which, together with steam coal, is obtained
from pits close to the works.

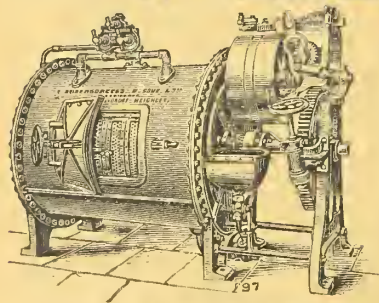
The Buildings and plant have been erected in a most
substantial manner, and are now in good condition.

There is a Railway siding into the works, and an abundant
supply of water.

Reason for selling—The Proprietors have no practical
knowledge of the trade. The works and books are open
for inspection by arrangement, and the fullest information
will be given to principals or their solicitors.

Lease can be given to meet the requirements of the purchaser.

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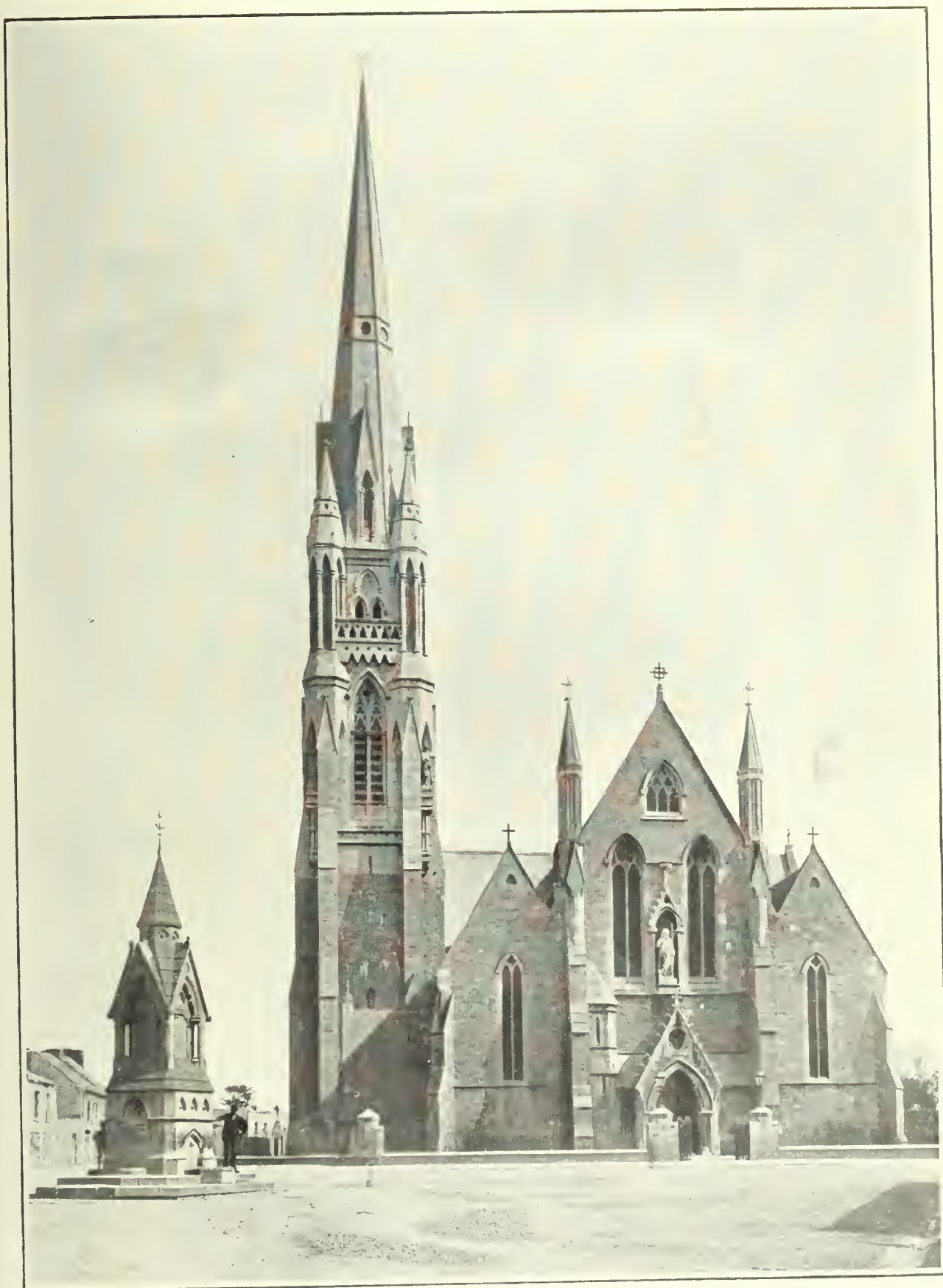
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No. 7—Vol. XLIX.

HEAD OFFICE

APRIL 6, 1907.

34 LOWER ABBEY ST.,
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Price 1d

TOPICAL TOUCHES.

We are now reaping the results of over-building, the South African war, inflated and foolhardy municipal enterprise, the aggressive policy of the Trades Unions, and a variety of other like matters—the effects are hardly satisfactory.

* * * *

A contemporary gives an almost incredible account of the poverty and destitution existing amongst the working classes in South Africa, for whom it has been found necessary to establish labour camps of enormous extent; the men are chiefly minors and artisans in the building trade.

* * * *

Last week more than one weekly illustrated journal published pictures illustrating soup kitchens and other machinery for the relief of distress in Toronto and other Canadian cities. Altogether, we may safely say that if we are badly off, we are probably better off than many of the Colonies.

* * * *

Messrs. M'Cartan and Co. send us a specimen of their magnificent Castlewella granite (Co. Down). The same has one face chiselled, another polished, and a third pitched. It would be difficult to name a more all round satisfactory building stone in Ireland, or elsewhere, for the matter of that. Chiselling to a marvellously fine surface, polishing excellently and looking particularly well with a pitched face, this stone is admirably adapted for building purposes of the highest class, coming in particularly usefully in any district where stone is scarce, or difficult to obtain.

* * * *

Castlewella Granite can be got in large blocks, and, being near the water, can be delivered on sites at prices which compare not unfavourably even with local stone. Needless to say, it makes a most beautiful monumental facing material, and has moreover the additional merit of being cheap. We wish some of our Irish architects who import rotten red sandstones from England and Scotland—stone that lasts, at best, a generation or two—would give this fine stone a fair chance.

* * * *

For the nave arcade columns of churches, either polished, or chiselled, shop fronts and porticos it is admirably adapted. As a weight-bearing stone, of course, it is at its best. In brief, for general purposes, no better stone exists.

* * * *

We have received the annual report of the Board of Public Works for Ireland, which, as usual, contains a record of a vast amount of useful work done during the year. Amongst the manifold duties of the Board is that pertaining to the preservation of ancient monuments, and a most interesting account, which we reproduce, together with a number of illustrations, is given of Holy Cross Abbey, Co. Tipperary, perhaps the most interesting ecclesiastical ruin in Ireland. Holy Cross is remarkable for its antiquity, for the distinctive and original character of many of its features and details; the tracing of the windows being worthy of special note. It is also almost unique in that it may be said to have been occupied as a monastery until quite late in the eighteenth century.

New Sacristies are about to be added to the Church of St. Michan, Halston-street, Dublin, from the designs of Messrs. Ashlin and Coleman.

* * * *

An experienced Cork builder tells us, what is but confirmation of what we have previously heard—namely, that the building trade was never within living memory so quiet as it is at present.

* * * *

The new work at Queenstown Cathedral, consisting of new side chapel and sacristies, with a two-storey Confraternity building, has been begun, the contract being in the capable hands of Mr. John Sisk, of Cork, who has had such wide experience of church building in Ireland. The contract will amount to about £6,000. The work will be carried out with Co. Dublin granite, with limestone dressings, to match the existing buildings, the whole of the latter being supplied by Mr. Maguire, of Cork, from his quarries near Littleisland.

* * * *

We paid our first visit to this fine Cathedral the other day, although we had several times previously seen it from Cork Harbour. It is indeed a remarkable piece of work, the site, or base for the structure, having to be terraced out of the solid rock; from its commanding situation it naturally has a most imposing appearance, from the water near at hand, and in the interior.

* * * *

Queenstown Cathedral was begun close on forty years ago, and has been from time to time continuously added to. Originally intended for the purposes of a Parish Church, its purpose was changed, and the project gradually expanded. With the completion of the present works the scheme will be practically completed, with the exception of the tower and spire, the base or stump of which appeals eloquently for its finishing touches.

* * * *

Costing up to the present about £150,000, Queenstown Cathedral may be said to represent the highest type of that early French-pointed style which was revived and so largely employed in Ireland during the 'sixties, 'seventies, and early eighties. The architect was Mr. G. C. Ashlin, R.H.A., who is also responsible for the latest additions.

* * * *

A new church is about to be built at Castletownberehaven, Co. Cork, and as the result of the Assessor's report on the limited competition which was held some time since, Messrs. Doolin, Butler, and Donnelly, of Dublin, have been appointed architects. Four other architects competed. The design selected is of a very simple type, based on early Gothic type as developed in Ireland. Some £10,000 is in hands towards the cost of the project.

* * * *

We hear that the Commission of the Peace has been conferred by the Lord Chancellor upon Mr. P. J. Kinlen, building contractor, Greystones. Mr. Kinlen and the Greystones of to-day are practically convertible terms. He was, not so many years ago, the pioneer of building on the now flourishing Burnaby Estate, upon which so many delightful residences have since been built, many of them by Mr. Kinlen. The Burnaby Estate shows what the owners of a building estate, when possessed of some taste and a little firmness, can do, despite the vile taste of the bulk of the modern public, even in Ireland.

SOME ASPECTS OF THE HOUSING QUESTION.*

By CHARLES H. ASHWORTH, F.R.I.B.A., *Architect to the Dublin Artisans' Dwellings Co., Ltd.*

In view of the fact that the objects and purposes of the Guinness Trust (Dublin) and of the Bull Alley Area Trust were, to a large extent, similar, and the Trustees the same in each case, it was felt that their amalgamation into one trust would increase their usefulness and tend to their more efficient and economical management. To effect this amalgamation it was found necessary to apply to Parliament, and to obtain the "Iveagh Trust Act, 1903." In this Act are embodied all the provisions of the Act of 1899, and any objects and purposes of the Guinness Trust (Dublin) not included in the Act of 1899 are authorised to form part of the new Trust. The 1903 Act also provides for the transfer, to the Iveagh Trustees, of portions of the Bull Alley Area, as and when completed, without waiting for the completion of the entire improvement scheme as contemplated in the 1899 Act, and for vesting the land and buildings in New Bride Street, described above, in the Iveagh Trustees forthwith.

Workmen's Dwellings.

The workmen's dwellings, Patrick Street and Bride Street, occupy frontages of 275 feet to Patrick Street and Bride Street respectively.

They consist of 8 T-shaped blocks, each of 5 storeys, housing in all 250 families, and 26 shops are provided on the ground floors facing the two streets.

The dwellings are of two kinds, self-contained and associated; the self-contained being for the superior class of tenants able to pay for their own separate laundry, balcony, and conveniences; while the "associated," though with dwelling rooms equally large, have one laundry and two conveniences common to either three or four families.

The following table represents the rents charged:—

3-room self-contained tenements, at 5/3—6/3 per week.
2-room self-contained tenements, at 4/3—4/9 per week.
3-room associated tenements, at 4/9—5/6 per week.
2-room associated tenements, at 3/6—4/3 per week.
Single room tenements, at 2/—2/9 per week.

It is expected that at the above rents, after making all proper deductions for rates, taxes, repairs, empties, superintendence, insurance, and other outgoings, there will be a net return of three per cent.

The cost of the buildings may be summarised as follows:—

	No. of Tenements.	Cost of Site.			Cost of Buildngs.		
		£	s.	d.	£	s.	d.
Bull Alley ...	250						
Shops ...	26						
Kevin Street ...	335	1,712	13	11	56,884	1	1
Patrick Street ...	...	1,800	0	0	60,039	17	7
Bull Alley ...	...	1,766	0	0			
		£3,506	0	0			
Iveagh House.							
508 Cubicles ...	...	1,430	0	0	36,114	9	0
Baths ...	...	610	0	0	15,000	0	0
		£7,318	13	11	£168,038	7	8

Making a total expenditure, exclusive of the cost of clearing the site, which additional cost has also been borne by Lord Iveagh, of £175,357 ls. 7d.

The Iveagh House is, in itself, a distinct aspect of the housing question—one with which we are perhaps the least familiar—because it is a new idea.

It is intended to afford to single men a healthy home, with separate cubicles as sleeping accommodation, at a rent of sixpence per night, conducted on the same principles as those obtaining at the Rowton Houses in London.

The lodging-house occupies a site having a frontage of 196 feet to Bride Road, and a depth of about 100 feet, and is five storeys in height, exclusive of the basement.

A dining-room, about 62 feet by 50 feet, with tables and seats able to accommodate 230 lodgers at one time, with the catering department and annexes.

A smoking-room, 48 feet long and 41 feet wide, in the widest part.

A reading room, 50 feet long and 19 feet wide, exclusive of bays.

A shoemaker's shop, a tailor's shop, also a boot-cleaning and brushing room.

Lodgers are able to cook, in the dining-room, victuals they may purchase outside, or those they buy in the catering department of the lodging-house. For the latter purpose a shop is provided, opening into the dining-room,

where food, raw or cooked, will be dispensed approximately at cost price. The lodger will have at his disposal crockery, cutlery, and cooking utensils, if he does his own cooking. Grocery stores and larders are provided in connection with the shop for the purpose of replenishing the stock as sold.

In the basement are:—

A lavatory, 46 ft. by 18 ft., fitted with 47 basins.

A double row of six bathrooms.

A row of six-foot baths.

An extensive range of sanitary conveniences.

A washhouse, with arrangements for the rapid washing and drying of linen.

A barber's shop.

In the basement are also situate, but with separate accesses, the boiler-house and coal store, the porter's common-room, luggage room, and the domestic servants' common-room, and four bedrooms, with separate access.

The linen stores, household stores, and general domestic offices, as well as part of the Superintendent's quarters, are in the front part of basement, separately accessible from ground floor.

The four upper floors containing the 508 cubicles are reached by three fire-proof staircases. All the four floors are similar in arrangement, a long, central corridor 4 ft. wide being placed in each limb of the building, with the cubicles disposed on either side of the corridors. Each cubicle measures 7 ft. 6 ins. by 5 ft., and has its own window. The divisions are made of wood, finished at a distance of 18 inches from the ceiling, so as to secure ventilation without interference with privacy. The planning is specially arranged, so as to ensure easy escape in case of fire, and there are occasional brick divisions with swing doors in the corridors to minimise the risk of spread of fire, and also to facilitate the process of fumigation after a possible case of contagious disease.

On each floor of sleeping cubicles two porters are to be accommodated, so that their services may be available at night if needed. Conveniences for night use, and sinks fitted with water supply, are provided on the several floors.

The buildings in Bride Street have been erected from the designs of Messrs. N. S. Joseph, Son and Smithem, of London (the architects to the Guinness Trust), and under the supervision of Messrs. Kaye Parry and Ross, and the buildings in Kevin Street by Mr. R. J. Sterling.

The public baths, Bride Road, are situated immediately opposite the Iveagh House, and occupy a frontage of 175 feet to Bride Road, and a depth of 52 feet.

The designs for the baths were prepared by Messrs. N. S. Joseph, Son and Smithem, London, and under the supervision of Messrs. Kaye Parry and Ross.

The whole scheme, so far as it is completed at the present date, affords a splendid object lesson of philanthropy, well conceived and well directed. The beneficent donor, Lord Iveagh, and those who are associated with him, have every reason to be proud of their efforts for the betterment of the housing of the working population of Dublin.

The Association for the Housing of the Very Poor, Ltd., was incorporated in December, 1898, with a nominal capital of £20,000, whereof a sum of £10,000 has been subscribed. At the inception of the company nearly £5,000 was subscribed, and this sum being considered insufficient for the purchase of a site and erection of new dwellings, the directors acquired some houses in Werburgh Street and Derby Square in order to make a practical trial of the policy which had been recommended them of transforming into single room tenements old houses already built, and since then, after considerable time and trouble, the Board obtained, in 1902, a site in Summer Street, on which has been erected portion of the entire scheme, which, when quite completed, will contain 350 separate tenements, men's reading-rooms, baths, and wash-houses. The rents have been fixed at the lowest possible figure, starting at 2s. per week. A very interesting detailed description of this housing scheme has been prepared by Mr. Hill, the Secretary.

Messrs. Arthur Guinness, Son and Co., Ltd., have provided 87 dwellings for their employees, at a cost of £21,215. The rents vary from 3s. 6d. to 8s. per week.

The City and Suburban Artisans' Dwellings Company have 250 dwellings at Cork Street, and 38 dwellings at Inchicore. The rents vary from 3s. 6d. to 7s. per week. The capital outlay, including making of streets, etc., comes to £35,164.

The Industrial Tenements Company have a single property in Meath Street, built at a cost of £5,000, with rents varying from 1s. to 4s. per week. This is, I am informed, the oldest company of the kind in Dublin.

The Great Southern and Western Railway Company have built 148 houses for their employees, accommodating £65

*Paper read before the Architectural Association of Ireland, 19th Feb., 1907.

persons. The rents range from 3s. 6d. to 7s. per week; the outlay is not given in the returns, but it is probably about £30,000.

The Midland Great Western Railway Company have built 42 houses at a cost of £12,000; they are let at 7s. per week; also 40 smaller houses, at a cost of £6,500, which are let at 3s. 6d. per week, and all are occupied by their employees. Total outlay, £18,500.

Messrs. Watkins (Brewery).—This Company have 87 dwellings for their work-people. The total cost of the buildings was £14,460; the rents vary from 2s. 6d. to 6s. 6d. per week.

The Dublin United Tramways Company have erected dwellings for their employees in Donnybrook, Dollymount, and Rathmines, and own about 104 cottages, with rents varying from 6s. 6d. to 3s. per week; the total outlay, exclusive of land, being £18,262.

In addition to the foregoing there are within the city area proper several groups of dwellings which come under the head of private enterprise. It is rather difficult to estimate their extent accurately, or to approximate the expenditure on these schemes, but I should say the estimate given in the following summary is more likely to be under than over the mark.

Rathmines Urban District Council.

The area of Township—1,714 acres.
Population—38,000 estimated.
Death rate—18 per 1,000.

Artisans' Dwellings.

Gulistan Site—1a. 2r. 0p. 64 self-contained dwellings, which cost £11,989, inclusive of fine for lease, roads, sewers, water mains, etc., and architect's fees.

Mountpleasant Site—7 blocks.

Hollyfields Site—5 blocks, containing 60 3-room dwellings; 111 2-room dwellings; 120 1-room dwellings, built at a cost of £48,046, inclusive of the cost of lands (under compulsory order), roads, sewers, water mains, etc., and architect's fees.

Mr. F. G. Hicks was the architect for the Mount Pleasant Scheme.

In addition to the Council's own undertakings, the Dublin Artisans' Dwellings Company, Ltd., have carried out two schemes, known as the Harold's Cross Scheme and the Mount Drummond Avenue Scheme, adjoining one another, now merged into one property containing 318 houses, built at a cost of £50,735, and having rents varying from 4s. to 12s. per week.

Pembroke Township.

The Township is something over 1,600 acres in area; the population is estimated by the Registrar-General at 26,925, and the annual rate of mortality per thousand persons being represented by deaths from all causes is 18.5, and from zymotic diseases, 1.0.

In addition to the schemes already built, which provide accommodation for 269 families at a cost of £52,092, the Council have under consideration further operations, which, when completed, will provide something like 200 or 250 additional cottages. I am informed that since the Council commenced operations they have lost no rent; there are at present no arrears, and, so far, it has not been necessary to take any proceedings for the recovery of rent, which is undoubtedly a very satisfactory state of things.

The houses are self-contained, separate dwellings, and have rents varying from 4s. 6d. to 2s. 9d. per week.

Most of the work has been from the designs of Mr. J. J. Farrell, but quite recently Mr. E. Bradbury has carried out some extensions.

Blackrock Urban District Council.

The Council have built houses in Blackrock and Williamstown to the number of 131, having rents varying from 8s. to 2s. 6d. per week. The total cost of these schemes amounts to £34,335.

The Blackrock tenements are in flats, and were designed and carried out by Messrs. Millar and Symes, and I believe the Williamstown and George's Avenue cottages, which are self-contained one and two-storey houses, were designed and carried out by Mr. F. C. Caldbeck.

Kingstown Urban District Council.

The Council have recently erected dwellings in different parts of the Township.

Those on the Sallynoggin site—50 three-room self-contained cottages.

Cost of site	£1,000	0	0
Cost of buildings	7,725	9	5
Cost of road sewers, water mains, etc.	1,531	10	7

Total cost

£10,257	0	0
---------	---	---

At Cumberland Street the Council own 56 habitations, divided into 48 three-room and 8 two-room cottages. Of the total sum which has been paid for the land, the Council have apportioned the sum of £400 as the cost of the half-acre on which these houses have been built.

The cost of the buildings was	£8,076	0	0
The cost of the site, road sewers, water mains, etc., etc.	6,362	0	0
	£14,438	0	0

At Cross Avenue, South, there are 115 habitations. Of these 21 are of a superior class, for which the rent is 8s. per week, 76 three-room, and 18 two-room.

The building contracts for this scheme amounted to £19,439, and the total expenditure to date is £17,306 5s. 2d.

At Cross Avenue, Mr. Berry estimates the houses to cost £15 2s. 7d. per foot of frontage.

At Sallynoggin, £8 16s. 5d. per foot of frontage.

At Cumberland Street, £17 per foot of frontage.

At Cross Avenue, North, £15 16s. 4d. per foot of frontage.

Calculated per habitation, the Council house each family at £169 at Cross Avenue, South:

At Sallynoggin	at £160	0	0
At Cumberland Street	at £106	0	0
At Cross Avenue, North	at £168	5	0

The Dublin Artisans' Dwellings Co., Ltd., were the pioneers in Kingstown, being first encouraged to build there by reason of the Township undertaking the cost of roads, etc.

They have a property known as "Eden Road," containing 116 houses, with rents varying from 7s. to 3s. per week, the cost of the work being £19,724, exclusive of roads, water mains, gas mains, etc., which cost about £1,900; the total therefore being £21,624.

The Company's property covers an area of four acres, three of which have been used for the houses and streets, and one acre of wood has been partly thinned, rafted in, and laid out in walks and plantations, forming a very pleasing feature of the property.

This table shows a general summary of the number of families provided for under the several housing schemes in Dublin and suburbs within the Registration Area, and approximate expenditure.

	Families.	£	s.	d.	£	s.	d.
Dublin Corporation	1,182	239,875	0	0			
Do. for clearing the Coombe and Plunket Street Area		51,700	0	0	291,575	0	0
Dublin Artisans' Dwellings Co., Ltd., exclusive of properties in Rathmines, Kingstown, and Bray (cost, inclusive of 18 shops)	2,722	449,860	0	0			
Sanitary remodeling of properties		13,905	0	0	463,765	0	0
Iveagh Trust and Guinness Trust (cost, inclusive of 26 shops)	585				116,923	0	0
Association for the Housing of the Very Poor, Ltd.	140				10,000	0	0
Messrs. Arthur Guinness, Son & Co.	87				21,210	0	0
City and Suburban Artisans' Dwellings Co., Ltd.	388				35,164	0	0
Industrial Tenements Co.	52				5,000	0	0
The Great Southern Railway Co.	148				30,000	0	0
The Midland Great Western Railway Co.	82				18,500	0	0
Messrs. Watkins & Co.	87				14,460	0	0
Dublin United Tramways Co.	107				18,263	0	0
Sundry Private Scheme throughout the City	325	@ say £165 each			53,625	0	0
	5,905						
Grand Total for the City of Dublin proper					£1,078,485	0	0
The Iveagh House, 508 cubicles					£36,114	0	0
Baths					15,000	0	0

Outlying Townships Within the Dublin Registration Area.

	Families.	£	s.	d.	£	s.	d.
RATHMINES.							
By the U.D.C. ...	355	54,035	0	0	54,035	0	0
Dublin Artisans' Dwellings Co.	318	50,735	0	0			
San. Renewals ...		2,357	0	0	53,092	0	0
PEMBROKE ...	269				42,815	0	0
KINGSTOWN.							
By the Council ...	310	64,952	0	0			
For Roads at Eden Rd., say		1,900	0	0			
By the Dublin Artisans' Dwellings Co., Ltd., Eden Road ...	116	19,724	0	0	86,576	0	0
Total for Outlying Townships	1,368				£236,518	0	0
Grand Total Dublin and Townships	7,273				£1,315,003	0	0
Cubicles in the Iveagh House	508				36,114	0	0
Bride Road Baths					15,000	0	0
Approximate Total Expenditure					£1,366,117	0	0

It is interesting to mention that the total outlay of the Dublin Artisans' Dwellings Company, Limited, in Dublin, Rathmines, Kingstown and Bray, when the present scheme on the Mount Temple area has been completed, will be upwards of £600,000, providing accommodation for 3,500 families.

I have now given a fairly accurate summary of the number of families provided for under the various Housing Schemes from time to time from as far back as 1876 to the present date, together with an estimate of the approximate capital outlay on these works.

The question we must now ask ourselves is:—Have the requirements of Dublin been met, or is there further scope for our energies? It would appear from the Report of the Conference held in Dublin in 1903, between the representatives in Parliament of the County and City of Dublin, the Corporation of Dublin, and the Dublin Trades Council, on the subject of the housing of the working classes, that there are still many areas about the city which, in the opinion of the Public Health Department, are insanitary, and which, if cleared and built upon, would provide accommodation for 1,500 to 1,700 families.

This Conference carefully considered what changes in the law were desirable to enable municipal authorities to deal adequately with these pressing matters.

The conclusions arrived at, and the suggested changes in the law that were recommended, were very much the same as those already outlined in the earlier part of this paper, when I referred to the deputation waiting on the Premier and Mr. Burns on November 6th of last year (1906).

The views of the present Government, as expressed on that occasion may, perhaps, be taken—as I have already said—as applying to the kingdom generally. If so, we may hope that increased facilities and easier methods and terms may rule in the near future, and so enable those (who have the responsibility on their shoulders of seeing to the betterment of the conditions under which so many of their fellow beings live) to provide such habitations as may be most suitable to the station of those requiring them, without adding too seriously to the rates and burdens which must necessarily be borne by the community at large.

It may be interesting if I describe the method of acquiring loans from the Board of Works.

Loans under the Housing of the Working Classes Acts are at present obtained through the Board of Works, and are secured by mortgage on the property dealt with. The rates of interest vary according to the number of years repayment is spread over, increasing with the latter. Roughly speaking, a building scheme is regarded, in the case of private enterprise, as security for a loan equivalent to about 50 per cent. of the value of the work, exclusive of the cost of site and of roads. In applying for a loan the procedure is as follows.

A memorial is presented to the Commissioners of Public Works on a form to be had from the Secretary, praying for the loan required, and setting forth particulars of the situation and area of the site, the conditions under which it is held, its estimated value, the rent (if any) payable therefor,

the number and cost of the houses proposed to be erected. The amount of the loan, and the period over which repayments are to extend, usually 20, 30 or 40 years, in half-yearly instalments, are stated. Attached to the memorial should be a schedule showing in detail the number of cottages to be erected, classified according to rent, with corresponding information as to contract prices. Accompanying these documents are a 6-inch Ordnance Map, on which the boundary of the site is marked, block plans on enlarged scale (say 32 feet to the inch); detailed plans and specifications of the different types of buildings, as well as of the roads, etc. All plans and specifications must be given in duplicate. Proof of title must, of course, be furnished to the Commissioners.

When the latter are satisfied in every respect as to the scheme, and have decided on the amount of money they will advance, the loan may be had in instalments, according to the value of work completed; the Commissioners, however, always withhold sufficient money to enable them, if necessary, to complete the scheme.

Port Sunlight, Cheshire.

As I promised in the early part of this paper, I am able, by the kind courtesy of Messrs. Lever Bros., Ltd., to give you an account of the Model Village of Port Sunlight.

Messrs. Lever Bros. have favoured me with the loan of thirty-six slides, which form a very interesting series of views of this charming village.

Their works were first started in Warrington in 1886, but in the autumn of the following year the site was found too small for their rapidly increasing business, and they determined to remove entirely to some rural district where ample acreage could be secured adjacent to both rail and water-transport, with reasonable facilities for obtaining the necessary supply of labour.

They finally selected land on the Bromborough Pool, about five miles from Birkenhead, and about seven miles across the river from Liverpool.

The intention to build the village was part of the whole scheme from its inception—from time to time purchases were made of the land, until to-day the area is 230 acres, of which about 90 acres are devoted to the business, and 140 to the village.

If you study the plan of the village you will note the irregular shape of portions of the village; they are the ravines or gutters, covering about twenty-five acres, up which in former days the tide used to flow. I well remember them; at full tide the prospect was comparatively satisfactory, but when the tide was out it was not very pleasing. Those who knew the place before the genius and energy of Mr. Lever and his architects transformed the whole area into its present delightful aspect, will not hesitate to bestow upon them their very sincere congratulations.

One of the most remarkable features of the village is the happy, irregular way in which it has been laid out, affording pleasant perspectives and surprises at each turn; full advantage having been taken of the undulations and irregularities of the site to add to the architectural beauties of the village.

The ravines have been spanned at several points by bridges, which have been well designed, and form a distinct and charming feature in the general design.

The general width of the roads has been fixed at 40 feet, say 24 feet roadway, and 8 feet each for footpaths—on the excellent principle of making the roadway three times the width of the path.

The first public building erected at Port Sunlight is the Gladstone Hall, built in 1891. This, in Mr. Lever's opinion, is the most appropriate of the village halls. Mr. Lever considers that the tendency at Port Sunlight has been, during the last few years, for the architects to become more and more elaborate in architectural designs, and more and more extravagant in the use of costly building material. And, although this has been done with the most happy results, he rather looks on such buildings as teaching merely what can be done with unlimited money; and whilst this is very right and proper in its own way, it does not convey so useful a lesson as the more difficult one of planning and designing simple, beautiful, and inexpensive buildings suitable to village life and village means.

This is a very important statement coming from one who has had so great an experience, and who has done so much to carry out and beautify the model village aspect of the housing question, and should be carefully taken to heart by those who may be contemplating similar projects.

It is just possible that Mr. Lever is not quite free from responsibility in this respect, for it is evident he would only be satisfied with the best, and required the work to be beautiful. He employed many architects to design his village—all well known for their skill and artistic abilities.

The natural result of this, in my opinion, was to establish a spirit of emulation, to cause the architects to put their

best work into their designs, and in all things to endeavour to keep their work up to a standard which had thus been unconsciously set up.

The financial aspect of the village at Port Sunlight, in 1902, shows that it has taken £350,000 to buy the 140 acres of land, build the cottages, houses, schools, shops, institutions, clubs, etc., including making roads, laying out the parks, etc., which expenditure must have been added to since, as the village was not finished at that date.

The standard type of cottage, eighteen years ago, cost £200 to build, and identically the same cottage, in 1901, cost £350.

The parlour houses cost then about £350 each to build, and, in 1902, £550 each.

Upon this £350,000, or whatever the sum may now stand at, Messrs. Lever Bros., Ltd., receive no interest whatever; the rents being fixed at such an amount as only to pay for rates, taxes, repairs and maintenance.

The rents have been increased from 3s. per cottage per week to 5s. per cottage per week, owing to increased cost of maintenance of the parks, roads, and cottages.

The cost of repairs has become extravagant, owing to the fact that every tenant has been allowed practically any repairs he asked for. This was allowed because the tenants, as a whole, paid the total cost of repairs and maintenance; but I understand the system is not satisfactory, as individual tenants do not realise its extravagance.

It would seem experience has taught Messrs. Lever that with the most economical expenditure on repairs and maintenance, the rental of a cottage, to cover rates, taxes, and maintenance only, would be 3s. 6d. per week, and of a parlour house, 5s. 6d. per week; and that out of such rental nothing would be available as interest on capital outlay.

Taking the value of the land at £240 per acre, and, say, ten cottages per acre as the maximum number per acre, allowed by Messrs. Lever Brothers, after allowing the proportion of each cottage for parks and roads, the total cost per cottage and land is £354; which, at 4 per cent. interest, and 1 per cent. depreciation (in addition to cost of maintenance already provided for) is, say, £17 14s. per cottage per annum, or, say, 6s. 10d. per cottage per week. Add to this the cost of rates, taxes, repairs, and maintenance, the total works out to 10s. 4d. per cottage per week, as the letting value of the Port Sunlight cottages on an ordinary commercial basis.

Taking the rate of interest at 3 per cent., and of depreciation at $\frac{1}{2}$ per cent., the sum of 4s. 9d. per cottage per week would be sufficient to meet these, and, consequently, a gross rental of 8s. 3d. per cottage per week would be sufficient.

These figures show that to build a village such as Port Sunlight is not commercially possible, and therefore should not be taken as models for municipal and commercial housing schemes, where due regard to the interests of the ratepayers and shareholders, as the case may be, should be observed as the fundamental basis of all such undertakings.

ROYAL HIBERNIAN ACADEMY.

In the House of Commons Mr. Boland presented a further petition protesting against the recommendations contained in the majority report of the Committee which inquired into the position of the Royal Hibernian Academy. The petition was signed by—(1) Mr. William John Gilliland, as chairman, and Mr. Ferguson, as hon. secretary of the Joint Art Committee of the Ulster Society of Architects, the Belfast Arts Society, and the Ulster Arts Club; (2) Students of the City of Dublin Technical Schools; (3) Art teachers and students of Cork; (4) Citizens of Cork; (5) Art teachers, students, and citizens of Limerick; (6) Art teachers and students of Waterford; (7) Artists and citizens of Belfast. The document set out—(a) That any Bill founded on the recommendations of the Committee of Inquiry aimed at depriving the Royal Hibernian Academy of its academic functions must inevitably tend to its abolition, and to the discouragement of Art in Ireland; (b) That such a proposal is most untimely, having regard to the large amount of independent effort which is at present being directed to the development of Art in Ireland; (c) That the Joint Art Committee, the chairman of which is your petitioner, W. J. Gilliland, and the hon. secretary whereof is your petitioner, James Ferguson, is representative of 400 members of the Ulster Society of Architects, the Belfast Arts Society, and the Ulster Arts Club, and which members are artists, architects, Art craftsmen, and others interested in Art, and said Societies are unconnected with the Royal Hibernian Academy.

Mr. H. B. Lloyd has recently been appointed manager at the Neath Electricity Works.

OUR SOUTHERN LETTER.

FROM OUR CORRESPONDENT

Waterworks, Etc.

The Waterworks Committee and Public Health Committee of the Cork Corporation have now under consideration what steps should be taken for the purpose of improving the filtration of the water supply of the city. For some time past it has been known that the filtration tunnel, which has been in use for some years, is insufficient for the purpose during a dry season.

Samples of the water have been obtained at the weir in the river, at the pure water basin, and in one of the mains in the city, and these have been analysed. The first sample, according to the analyst's report, cannot be regarded as too bad for an open river. The second sample is very good, and shows strikingly the result of filtration. The third sample shows the presence of some local mischief—either a leakage in the pipe or a want of flushing out.

It was decided that the City Engineer should be asked to submit a scheme which would be sufficient to supply the city with filtered water during the whole of any dry season, so as to avoid the necessity of using unfiltered river water, as has to be done under the existing scheme. That he should report whether the present filtering tunnel should be continued, or new filter beds of sufficient area to deal with the whole supply should be provided.

It was also decided that five members, selected from the above Committees, should act as a sub-committee with the City Engineer in connection with the matter.

The Fermoy Rural District Council, in reply to their application to the Local Government Board for a loan of £1,150 for the purpose of providing a supplemental water supply, have been informed that the gaugings supplied are insufficient, and should now be resumed and continued at monthly intervals for a period of nine months at least, unless clear evidence as to the flow of water at the source throughout the dry season is already available. A sample of the water should also be submitted for analysis, and report of analyst forwarded to the Local Government Board.

The Mallow District Council having arranged terms with the War Office authorities in connection with the water supply to Buttevant Barracks, have now decided to ask the Local Government Board to issue the loan of £6,500 sanctioned for this purpose, and that the necessary steps be taken to proceed with the works.

General.

The Fermoy Urban Council have received the sanction of the Local Government Board for a loan of £4,150 for the purpose of erecting workmen's dwellings and the acquisition of the land, in connection with the purchase of the land; the landlord agreed to submit the matter to arbitration, but reserved the right to appeal against the arbitrators' award. The Council will have to decide whether they will agree to this clause, or else they will have to seek compulsory powers for the acquisition of the land.

The Local Government Board having approved of the plans, etc., in connection with the application of the Kinsale Urban District Council for the loan of £1,500 for the erection of ten workmen's dwellings in Kinsale, they are now advertising for tenders for the execution of the work.

The Cork Rural District Council are advertising for tenders for the erection of 235 labourers' cottages, and have decided that the cottages must not cost more than £130 each. This is to include simple out-offices and wire-fencing around each plot.

The Mitchelstown Urban District Council have received three tenders for the construction of the septic tank and sewerage works for Mitchelstown, and have decided to give the work to Messrs. Creedon, builders, of Fermoy, whose tender for the sum of £905 was the lowest received.

The award of Mr. T. M. Deane, umpire, in connection with the Macroom Sewerage Arbitration, has now been published, and he has decided that the compensation to be paid by the Macroom Urban Council for the use of the Rectory, Inch, is as follows:—To the Representative Church Body, £57 compensation and £12 6s. 9d. costs; and to the Incumbent, Rev. J. L. Connolly, M.A., £54 compensation, and £12 10s. 1d. costs.

ARCHITECTS WANTED

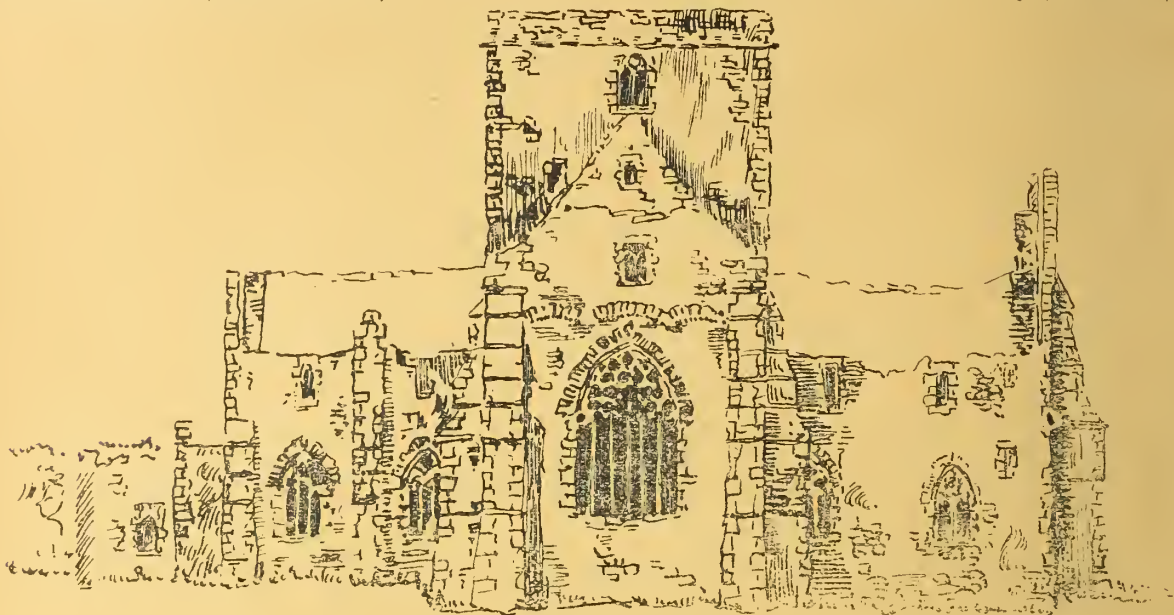
to note that THE DUBLIN DRAWING & PHOTO-PRINTING OFFICE is always at their service for making TRACINGS or WORKING UP DRAWINGS from sketches. All Drawing Materials supplied. Photo-prints a speciality. Tel. 2278. Address 17 Westland Row, Dublin.

OUR ILLUSTRATIONS.

Holy Cross Abbey.

1.—History.

The Abbey is said to have been founded in the year 1169, by Donald O'Brien, King of Thomond, for Cistercians, a reformed branch of the Benedictines, and was daughter or branch of Nenay (Monasternenagh), County Limerick. It subsequently became a place of great importance. The Abbot was styled Earl of Holy Cross. He was a Baron in Parliament, and usually Vicar-General of the Cistercian Order in Ireland. The lands belonging to the Monastery formed an Earldom.—(See Note "A").



East Elevation.

The ancient name of the Monastery of Holy Cross was Monastair Ochterlanhain. It is said that the change of name to "Holy Cross" was due to the gift of a portion of the true Cross by Queen Eleanor, wife of Henry II., and that one of her six sons, owing to the pious care of the Monks, found a place of burial there.—(See Note "B").

To show the extent and importance of this Monastery, we find it recorded (See Note "B") that, "in 1563 this Abbey, with its appurtenances, containing 160 acres of arable land, 60 of pasture, and 2 of wood, in the town of Holy Cross, 1 ruined messuage, 60 acres of land in the town of Kilkenny, 16 acres in Ballykelly, 2 messuages, 4 cottages, and 24 acres of land in Lisnagonok, 30 acres in Kilcolman,

one close near the town of Carlow, containing a garden and orchard, and 3 acres of pasture, and 7 acres in Ballysheen and Maynooth, in County Kildare, were granted to Thomas, Earl of Ormond, in *capite*, at an annual rent of £15 10s. 4d."

The Abbey was legally dissolved in 1536 by the Act passed for the dissolution of the monasteries, but the monks had possession of it at intervals for a considerable time after, ministering in the Church until 1633. About this time the Abbot, Luke Archer, accompanied by some of the monks, took up residence at Kilkenny, taking with them the relic (the portion of the true Cross) above referred to.

The last Abbot was Bernard Lahy (about 1724). At his

death one of the monks, named Cormack, claimed the office as his in right of his Order, but his claim was not admitted. He retained a cell in the building until his death, in 1752. He was the last of the monks of Holy Cross Abbey.

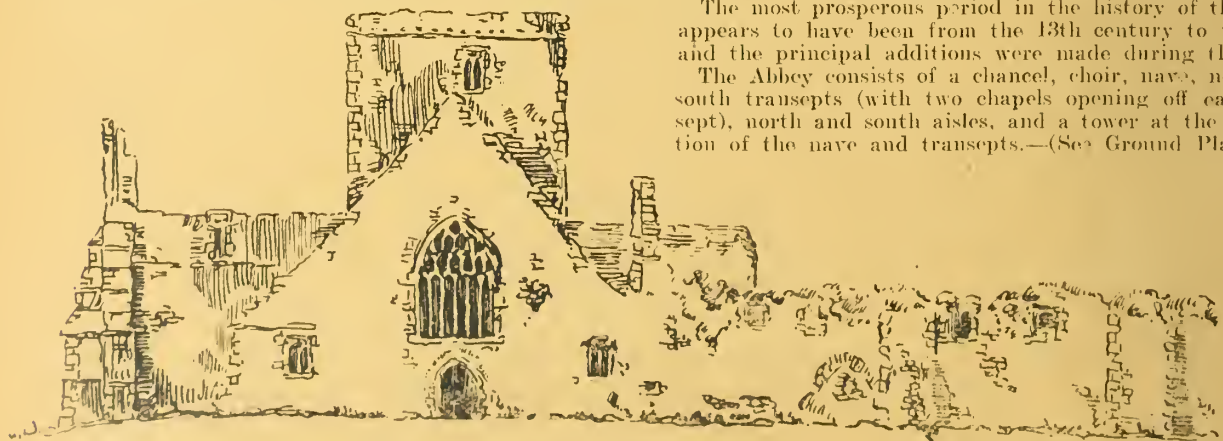
The seal of this Monastery is attached to a deed in Kilkenny Castle, bearing date 1449.

2.—The Structure: Description and Details.

There have been so many alterations and additions from the 13th century to the 16th, that there is very little of the original work discernible in the church except some portion of the south wall, and the doorway in N.E. of cloister, entering the south aisle.

The most prosperous period in the history of the Abbey appears to have been from the 13th century to the 15th, and the principal additions were made during that time.

The Abbey consists of a chancel, choir, nave, north and south transepts (with two chapels opening off each transept), north and south aisles, and a tower at the intersection of the nave and transepts.—(See Ground Plan).



West Elevation.

30 acres in Thurles, in this county, 1 messuage, 62 acres of arable, 6 of pasturage in Ballenterra, County Kilkenny,

NOTE "A"

In a document sent from the Monastery at Clairvaux to Ireland A.D. 1166, it is stated that 1214 was the date of the foundation of the Monastery of Holy Cross, and elsewhere it is stated that 1214 was the year.

It is recorded that in A.D. 1169, before the coming of Henry II. in Ireland, the first foundation or colonizing of this Monastery was made by the Black Monks, commonly called Benedictines. This order flourished in England from the year 563 to the year 1535. They lived here up to the year 1724.

NOTE "B"

—Training in Chronologia Monasterii Sanctae Crucis in Hibernia," translated and edited by the Reverend Denis Murphy S.J., pp. lxxi, from which work the foregoing historical notes are chiefly taken.

The chancel is 23 ft. 9 ins. by 22 ft. 8 ins. wide, and has a groined ceiling with moulded ribs. The east window of the chancel has six lights, with tracery head, as shown on the drawings. The sedilia are in the south wall of the chancel. It is sometimes called the founder's tomb. The latter, however, is on the north side of the chancel.

The tower is 22 ft. 3 ins. by 13 ft. 6 ins., and has a groined ceiling with moulded ribs. The choir is 31 ft. by 22 ft. The nave is 61 ft. by 22 ft. 6 ins. The aisles extend from west end of nave to the transepts. The north aisle was lighted by four windows. The south aisle had only one window in the west end.—(See Supplement).

The north transept, 22 ft. 9 ins. by 16 ft. 9 ins., has a groined ceiling similar in character to the ceiling of the tower. Opening eastwards off the north transept are two chapels, 12 ft. by 8 ft. 8 ins., and 11 ft. 7 ins. by 9 ft. 1 in., with groined ceiling and moulded ribs.

The south transept, 26 ft. 2 ins. by 14 ft., had not a groined ceiling. Opening eastwards off the south transept are two chapels 10 ft. 8 ins. by 10 ft. 5 ins., with groined ceilings and moulded ribs. Between these two chapels is a space formed by a double row of arches and columns, erroneously supposed to have been used for waking the bodies of departed monks. There is a detail drawing of this and the sedilia in the Board's Annual Report for the year 1881-'82, and the so-called "waking bier" has recently been reproduced in plaster for the National Museum in Kildare Street, where it may be now seen.

There are rooms over the chancel, north transept, and the chapels in north and south transepts—the two latter had fireplaces.

The chancel, transepts, chapels, tower, choir, and north aisle wall, all appear to have been built about the same period—early in the 15th century. The doors and windows in the west gable, and in the buildings surrounding the cloister garth, appear to be of the same date—except the door at east end of the south aisle, which is of a distinct Norman character (see drawing), and probably belonged to the early building of the 12th century.

The windows and doors of the west gable, and the openings in the buildings at the east and west sides of the cloister garth, were insertions, as also the door from the cloister to the west end of the south aisle.—(See Drawings).

Some time in the 19th century, the south wall of nave having shown signs of falling southwards, some buttresses and arches were built to keep it secure.

The outlines of two of the three original windows, which have been built up, are seen in the west gable of the nave; they probably belonged to the 12th century.

The wall of the north aisle is of a better class of masonry than that of the older work in the south aisle, and is six inches thicker.

The smaller windows in the north aisle are similar to those in the west gable at the ends of the north and south aisles: they appear to have been built in with the walling, and are not insertions, like the windows of the west gable.

The wall of the south aisle is part of the original 12th century work; there is a modern buttress built against it, and there are four semi-circular arches springing from this wall to the nave wall for the purpose of supporting the nave wall, which was falling southwards. The buttresses and arches were, it is believed, built about fifty years ago by the owner of the surrounding property. Two arches of a similar character were built across the north aisle.

The range of buildings on the western side of the cloister garth contained the dormitory of the lay brethren, with stores and cellars under.

There was a range of buildings on the south side completing the enclosure of the cloister garth, but nothing now remains except a doorway, five feet wide, and the foundation of a wall, upon which the present boundary wall is built.

The range of buildings of the eastern side of the cloister garth contained the chapter room, and other rooms and passages on the ground floor, with the monks' dormitories over. The masonry of the walls of this portion of the building appears to be a portion of the original work, but some of the cutstone work of the doors is of later origin. Two doorways, one entering the hotel grounds and one adjoining it, are of modern construction.

The cloister arcading was continued around the four sides of the cloister garth, and has disappeared. The original work in it appears to be about 15th century. There is only a small portion of it now standing. It was re-erected from the fragments found on the site. The arcade originally was carried around the north, east, and west sides, as may be seen by the position of the corbels in these walls; it was also, no doubt, carried along the south side, as indications of the foundation walls have been recently discovered, where marked by dotted lines on the ground plan.

The apartments of the ground floors of the two ranges of buildings east and west of cloisters are vaulted over. The eastern range comprised sacristy, chapter room, passage from cloister to the grounds surrounding the Abbot's residence; also a small room, 18 ft. 6 ins. by 10 ft., and a large room, 33 ft. by 15 ft. 6 ins., which was probably a day room or parlour. The monks' dormitory was on the next floor.

The ground floor of the range on the west side of the cloisters contained three large rooms, which were probably stores and cellars, buttery, etc., and the storey over would be the usual place for the lay brothers' dormitory. There are fireplaces in one of these apartments, which, with the garde-robes, are clearly insertions of a later date.

The refectory was probably at the southern side of the cloisters where shown on the plan.

The Abbot's residence and Guests' House, south-east of the cloisters, contained kitchen, hall, stairs, and cellars on the ground floor, and sleeping rooms and library on the upper floor.

The buildings between the Abbot's residence and the river, on the ground floor, comprised vaulted stores, kitchen, day-room, or parlour, with long passage between these rooms and the stores; most of these buildings were three storeys high. As there was a great number of pilgrims and visitors to the Abbey, this building was probably occupied as a guest house.

The nave walls are of rather inferior class of rubble masonry, with pointed arches formed with rough cousoirs; they spring from plain piers without any cap or moulding. There are modern semi-circular arches under the old pointed arches in the south nave wall of the same class of work as the arches across the aisles, and probably built at the same time to strengthen the wall.

The arch between nave and choir is of a similar class of work to that in the old pointed arches in nave walls. The present choir, chancel, transepts and chapel, appear to be the work of about the 14th or 15th century.

The cloister garth and the conventual buildings east and west of it are in the occupation of Mr. Wall, of Holy Cross House. The Abbot's house and other residential buildings also belong to Mr. Wall, and were, until recently, in the occupation of the tenant of the small hotel adjoining.

Local tradition has it that the burial ground was at the western side of the Abbey. It is also said that the mill was at Bakestown, but it is more likely that the mill was on the site—adjacent to the present mill—where there is an ancient weir.

It is to be regretted that the interior of the church is still used as a graveyard, not controlled by any authority. The Board have no power to interfere with the right of burial claimed by large numbers of persons not now resident in the locality, and by strangers. This gives the interior a neglected appearance. The conventual buildings are not vested, and are still in the hands of Mr. Wall, as mentioned above.



EXHIBITION OF ARCHITECTURAL DRAWINGS.

From the 27th ult. to the 4th inst. there were exhibited in the rooms of the Architectural Association, Dublin, a large number of architectural drawings. As usual, these drawings represented the highest type of draftsmanship, and no small degree of skill and power in design, if hardly equal to last year's exceptionally fine display. Year by year the Royal Institute of British Architects send the prize drawings of the year "on tour" to the chief provincial centres and to Dublin.

Every drawing exhibited reached a high standard, and was well worthy study on the part of young draftsmen and designers. Indeed, it is difficult to over-estimate the great value of the example of such fine specimens of work.

The following were the drawings on exhibition:—

The Royal Institute Silver Medal (measured drawings)—Stokesay Castle, Shropshire (3 strainers), by Mr. David Robertson (under motto, "Swallow") awarded certificate of hon. mention.

The Soane Medallion—Designs for a large city hotel facing a public square (3 strainers), by Mr. Harold Cooper (under motto, "Cameo"), awarded the medallion and £100; 2 strainers, by Mr. Anthony R. Barker (under motto, "Simplex"), and 2 strainers by Mr. A. J. Pitcher (under motto, "Urn") awarded a certificate of hon. mention and ten guineas each.

The Owen Jones Studentship—Drawings by Mr. Arthur R. S. Jackson (3 strainers), awarded the certificate and £100.

The Pugin Studentship Drawings, by Mr. A. J. Nargetson (3 strainers), awarded the medal and £40.

The Tete Prize—Designs for a loggia for sculpture to screen the blank end of a building (3 strainers), by Mr. G. Salway Nicol (under motto, "Vignola"), awarded the certificate and £30, with an additional £20 from the funds of the Wimpey Bursary; and 2 strainers, by Mr. P. Napier Henry (under motto, "Nisi") awarded certificate of hon. mention and £10 10s.

The Grissel Gold Medal—Design for a grand stand, constructed of timber, on a racecourse; 2 strainers, by Mr. W. A. Mellon (under motto, "Royal Ascot"), awarded the medal and £10 10s., with an additional £10 10s. from the funds of the Wimpey Library.

The Arthur Cates' Prize—Drawings by Mr. W. W. J. Calthrop (2 strainers), awarded the prize of £42.

The testimonies of study submitted for the Intermediate Examination by Mr. C. R. Morrison

THE IRISH BUILDER AND ENGINEER.

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Vol. XI IX.	APRIL 6, 1907.	No. 7
CONTENTS.		PAGE.
Topical Touches	...	234
Some Aspects of the Housing Question	...	235
Our Southern Letter	...	241
Royal Hibernian Academy	...	241
Our Illustrations—Holy Cross Abbey	...	242
Exhibition of Architectural Drawings	...	245
LEADING ARTICLE :—		
Eighteenth Century Dublin	...	246
COMMENTS :—		
The Hibernian Academy	...	249
Muddle!	...	249
Correspondence	...	250
Clontarf Main Drainage	...	250
Building News	...	252
Architectural Association of Ireland Jottings	...	254
Engineering Items	...	257
Imports	...	258
Building Exhibition at Olympia—Forecast of Exhibits	...	261
Engineering News	...	265

EIGHTEENTH CENTURY DUBLIN.

Some few weeks ago we had the pleasure of listening to a speech by His Grace Dr. Walsh, Archbishop of Dublin, in which he referred to a book by Sir Frederick Falkiner, ex-Recorder of Dublin, which he described as of absorbing interest. He had obtained it for the purpose of a special reference, but found himself unable to lay it down until he had read it through.

Ostensibly Sir Frederick Falkiner's work is an account of the Blue Coat School, but it is really a discursive history of old Dublin, and the Rev. J. P. Mahaffy has reviewed it most ably in the columns of "The Church of Ireland Review." He (Dr. Mahaffy) is himself a good authority, and has written much on the subject of seventeenth and eighteenth century Dublin.

He enters critically not alone upon the architectural and social aspect of those days, but analyses the motives and characters of the cultured classes, and of the objects which prompted them to make Dublin not alone the second city of the Empire, in fact as well as in name, but one of the finest centres of cultured thought and artistic instinct in Europe, if only for a very brief period. How different from to-day!

Of the great houses built in the latter half of the eighteenth century Dr. Mahaffy says "there was nothing like them in any English or Scotch city at that date, and nothing so truly artistic in any city since." Whatever doubt there may be about the truth of the latter half of the sentence, there can be none about the first. Dublin was then in that particular *facile princeps*.

Amongst the still remaining great houses of Dublin, Dr. Mahaffy says, the best are those the decoration of which were entrusted to the Brothers Adam and to Wedgewood. We were unaware that any original work had been done in Dublin by Wedgewood or the Adam Brothers; but numerous masters of that light and delicate style of decoration flourished in Dublin about that time. Some of the masters were native Irishmen who had assimilated the skill and taste from the best sources of the day, and others were Italians, the original colony of whom were imported by the Lord Portarlington of the day, and whose descendants lingered long, though afterwards decadent in their art, and losing the art of modelling *in situ*.

Dr. Mahaffy explains this proud position of Dublin by saying that the gentry of the time "were not only rich and extravagant, but full of artistic taste." Sure it is that they must have possessed—as, indeed, we know they did—real culture in art.

He controverts Sir Frederick Falkiner's judgment that Charlemont House is the finest house in Dublin, and awards the palm to the work inspired by Adam and Wedgewood; but we incline to Sir Frederick's view. The Adams' and Wedgewood's work was internal decorations, so far as Dublin was concerned at all events, and, indeed, was limited to plaster modelling, and an influence upon delightful joinery. Charlemont House is a work of art inside and out, as is also Leinster House and Powerscourt House. Marlborough House has some claims, too; but the first three are architecture beyond question. Then there is our charming casinos or garden temples at Marino, Clontarf, and All Hallowses, Drumcondra, and several other notable examples like Powerscourt House, Enniskerry, Truly Dr. Mahaffy may well describe 1770 to 1790 as "the true golden age of Dublin."

Of the Adam houses Dr. Mahaffy tells us that we can still visit at least a score of nearly equal beauty.

"Perhaps Belvedere House, facing North Great George's Street, is the most striking and the most accessible owing to its courteous ecclesiastical owners. The number of smaller houses decorated in that beautiful style, and not yet hopelessly defaced by Victorian taste, is very great. But no man knows them all, or nearly all, for they occur sporadically, being the result of special taste or wealth in the gentlemen for whom they were built. Thus they all vary in their details. In a row of houses with the same plain brick fronts, and wholly without external ornament, some are quite plain, some full of stucco work, mahogany doors, and rich mantelpieces, and in no case, so far as we know, is one a direct and slavish copy of another."

How sad a falling off there is to-day!

In concluding his critique of Sir Frederick Falkiner's book, Dr. Mahaffy pleads for the compilation of "a careful catalogue *raisonné* of these and all the other houses beautiful in their interiors, and now passing rapidly into tenement houses, is a task by which an artistic architect might make a great reputation, and such a work should now be undertaken by public subscription, for it would require many illustrations. In a few years it will, alas! become impossible!" Obviously, very soon the preparation of such a work will have become impossible, and it is extraordinary how little has been done in this direction. In any other city with such examples at their doors, the architectural students would have measured over and over again the beautiful work existing. Very little has been done in this way. Mr. Arthur Hill, jun., made a nice set of measured drawings of the Custom House; Mr. Fred. Core, of Powerscourt House (the latter purchased by the late Lord Powerscourt); the work at Marino and All Hallowses has been measured once or twice, but that is about all.

A few years ago Mr. T. E. Hudman photographed a considerable number of the old Dublin work of the Renaissance period, and his photographs were reproduced in a fine American work, but no complete or systematic work has ever been attempted. A work on a general basis, and with all the aids of modern reproduction processes, beginning with the earliest Irish work and ending with the close of the eighteenth century, would be full of interest and a task and labour of love well worthy the attention of anyone filled with the love of art and pride in Irish achievements of days gone by.

Some important additions to the Church of St. Mary, Haddington-road, are about to be carried out; they will consist of new north and south aisles and porches. The roofs of the aisles will be covered with fibrous plaster vaults. The architects are Messrs. W. H. Byrne and Sons, Suffolk street, and the contract has been secured by Mr. James Kiernan, Talbot-street. The same architects are about to rebuild the Hibernian Bank in Bray.

COMMENTS.

The Hibernian Academy.

In our last issue we said that the citizens of Dublin were probably amongst the least artistically inclined, in sympathy and sentiment, of those of any civilised city of the size of Dublin. The truth of our statement was fully borne out by the meagreness of the attendance at the meeting lately held in the Mansion House to protest against the adoption of the majority report of the late Royal Commission. The Academy itself was represented by the President, Sir Thomas Drew, LL.D., who occupied the chair; and the Hon. Secretary, Mr. Catterson Smith, but no other representative of the general body of its members put in an appearance, so far as we could see. Words cannot convey more eloquently the amount of interest taken in the question by even the members themselves. Of the general public scarce a hundred attended. In any other city of Europe, even an English manufacturing town, such a proposal and such an appeal for sympathy would have produced an outburst of public indignation. Even Belfast societies have petitioned Parliament, and indeed if Dublin does not look out, the Northern City will soon outpace her in matters artistic, of which there are not wanting signs that there exists in the North the embryo of a living school of art, which is more than can be said of Dublin at present. The President stated the case ably and temperately, and announced that in all probability no further attempt would be made to force the majority report on the Academy, but, of course, there are other more serious considerations relating to the future of Art to be dealt with. Sir Thomas Drew paid a well-deserved tribute to Mr. Boland, M.P., for his continued championship of the Academy in Parliament. He was followed by Sir Charles Cameron, but Mr. George Fottrell made probably the best and most vigorous speech. He gathered that it was proposed to transfer the Academy to some official body. He thought education in every respect should be free, and that the transfer of the education of artists to Government officials would be most retrograde and pernicious. If there was to be a transfer, let the official body be transferred to the free one, for he did not see why the duties of the School of Art should not be carried out equally well by the Royal Hibernian Academy. He was told that since the functions of the School of Art were transferred to the Agricultural Department a sum of money available annually had not been applied. If that was so, the money might be made available for the Academy without the necessity of going to Parliament. The grant of £300 a year was ridiculously small for the purposes of an Academy in a city like Dublin. That is the case in a nutshell. The matter is one which concerns not alone the Academy, but the country. Art is practically dead in the country; unless it is to die altogether, something must be done.

Of even greater importance to our mind than suitable new buildings is the establishment of a fund from which scholarships tenable abroad in one or other of the great Continental centres of art, Munich or Dusseldorf, in Germany, Paris, Florence, or Rome, or, in fact, anywhere that there is an atmosphere of art. Even Glasgow would be better than nowhere. The Irish student possessed of talent for painting can get instruction more or less elementary in Dublin. He has access to a small and not particularly notable collection of paintings in the National Gallery, few private collections, and little or no statutory, add to which art is looked upon by the Irish public as a fad. Is it any wonder art is at a low ebb? The few thousands necessary to establish a gallery of modern art could not be collected in Ireland.

Art is a tender plant, and the influences of the present day in Ireland are too chilling for it to flourish. Why has no systematic effort been made to enlist the sympathy of the Dublin Corporation and other Irish municipalities? They could all help, as they do elsewhere,

and encourage Irish art and artists. Why, the Corporation of Dublin could alone well afford to maintain a scholarship; even if they did no more than buy one meritorious picture a year, it would do good.

Sir Thomas Drew announced that the Government had demanded of the Academy a scheme, and that they were prepared with one, modest and practicable. Let us hope that it will meet with sympathetic consideration from the Government, and even, we hope, from the Dublin public.

Muddle!

An apparent end to a more than extraordinary state of muddle in connection with the Clontarf drainage contract has at length been brought about, by the Corporation on Tuesday last deciding to accept the tender of Messrs. Binns, of Croydon, in a sum of £46,342 78.

The whole history of this transaction is still obscure, and in all probability will never be entirely revealed. From the facts now made plain, it is evident that the majority of the members were either fooled "up to the two eyes," or—well, we leave it to Mr. Vance and other militant City Fathers to suggest alternative and less creditable explanations.

Our readers will remember that when the Corporation of Dublin annexed Clontarf, they became liable, under statutory obligation, to carry out a drainage system for the annexed district. Under some pressure, a scheme was prepared and adopted, and tenders duly advertised for, that of Mr. J. Kelly, of Kilkenny, being accepted. Mr. Kelly's price was considerably below that of any other competitor, but his sureties (an American guarantee society) were not deemed acceptable by the Corporation, and he set about to seek other guarantors. At this juncture someone gave Mr. Kelly an introduction to a Mr. Crawford, of Edinburgh, and having seen that gentleman, it was eventually agreed that he should visit Dublin, and there pursue certain inquiries. Mr. Crawford did so, and decided not to proceed further as a surety for Mr. Kelly, who thereupon withdrew from the matter completely, after a vain effort to satisfy the Corporation by offering to largely increase the percentage of his retention money. The next proceeding was the re-advertisement of the contract, and receipt of fresh tenders. At the meeting held to consider the estimates, a tender was received from Mr. Crawford, under the style and title of "Crawford and Frame," and although it was some thousands of pounds higher than that of Mr. Kelly, the Lord Mayor and other members strongly urged the acceptance of Messrs. Crawford and Frame's, in preference to one from Messrs. Binns, of Croydon, on the grounds that the former firm was an Irish one, ratepayers, large employers of Irish labour, and about to start a great local industry, in connection with which they would manufacture in the city the materials needed for the execution of the contract. What grounds there were for this sanguine belief we know not. Possibly it was no more than the expression of a pious hope. Be that as it may, it served its purpose for the time being, and Messrs. Crawford and Frame's tender was duly accepted.

Before, however, those gentlemen had time to sign their bond or enter upon their work, the citizens were astounded by the sensational speech of Councillor Vance—a speech which fell like a bombshell on the astounded public. Mr. Vance unfolded a tale absolutely incredible in its scathing denunciation of the utter incapacity of the Corporation to manage the simplest affairs of public business, and startling in its description of the ease with which that august body had been bamboozled—according to Mr. Vance—and no one, seemingly, was in a position to contradict him. This eminent Irish firm, which was to do so much for the city trade, was not Irish at all, and hailed from "the Land o' Cakes," the partnership being simply a partnership of convenience, and devised solely for the purposes of this particular contract. There was much angry interchange of compliments, but the main facts went

unchallenged. Several meetings have since taken place, the contract has been rescinded, and on Tuesday the tender of Messrs. Binns, of Croydon, accepted by a majority.

A foolish effort was made by a minority of the Council to have the works carried out by direct labour, but, fortunately, the hopeless fallacy of this proposal was made clear to the majority of the Council. The responsible engineers advised the Corporation that direct labour would cost more, their own estimate being £52,000; so sane counsels prevailed, and the work has been given over to Messrs. Binns.

CORRESPONDENCE.

The New Conditions of Contract.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

DEAR SIR,—The enclosed letter has been sent to the Hon. Sec., Master Builders' Association.—Yours faithfully,

JAMES H. WEBB, Hon. Sec.

The Royal Institute of the Architects of Ireland,

20 Lincoln Place, Dublin,

26th March, 1907.

COPY.

"The Royal Institute of the Architects of Ireland.

"20 Lincoln Place,

"26th March, 1907.

"To John Good, Esq.,

"Hon. Sec. M.B.A.,

"55 Gt. Brunswick Street, Dublin.

"DEAR SIR,—My Council have received the circular letter you have addressed to members of this Institute covering a copy of the opinion your Association has obtained from Mr. James H. Campbell, K.C., on the revised Conditions of Contract recently adopted by this Institute. My Council can only assume, from the somewhat intemperate language in which Mr. Campbell expresses his opinion, and the particular reference which he makes to Clause 13, paragraph 2, of the revised Conditions, that he has not been made aware that that paragraph, so far from enunciating any new principle in building contracts, has been in all the printed conditions of contract in use by members of this Institute for the past forty years, and has hitherto been accepted without question by building contractors.

"Mr. Campbell's objection that the retention of this paragraph, unchanged, in the revised Conditions, prevents recourse to litigation is not unnatural, but it is because the powers vested in the architect under this paragraph have been as a general rule exercised fairly and reasonably between all parties, with the result that litigation has been the exception rather than the rule throughout Ireland, that my Council decided to retain the paragraph in its present form, the more particularly as the principle has been consistently approved by the judicial bench.

"The Conditions, as revised, contain no change in principle from those they have superseded. Such changes as have been made are for the most part verbal connections, except where the Council have endeavoured to meet certain grievances of which contractors had complained.—I am, yours faithfully,

"JAMES H. WEBB, Hon. Sec."

Conditions of Contract.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—Since my last letter appeared in your columns I have been amused by the palpable "playacting" by the Dublin master builders. They don't like the new conditions of contract—probably nobody does, by this time, not even their authors—and yet they stop jobs proceeding, prevent much-needed employment, while cheek by jowl they sign, without demur, far more stringent conditions. At the present moment a contract has just been, or is about to be, signed for a city job, three times, I understand, the extent of that of Messrs. Kapp and Peterson's. It was freely tendered for by most eminent members of the Master Builders' Association, and accepted by one of their leading members. The conditions attached make the architect's decision on each and every point arising final, binding, and without appeal!

After Mr. Johnson Roberts' able statement in your columns it is unnecessary to notice further the clap-trap of Mr. J. H. Campbell's dramatic opinion—it is playing to the gallery too openly to deceive anyone, least of all so able and astute a lawyer as Mr. Campbell.—Yours, etc.,

M.R.I.A.

Dublin, March 28th, 1907

MASTER BUILDERS' ASSOCIATION.

At the annual general meeting of the Master Builders' Association, held at the Grosvenor Hotel, Westland Row, Dublin, the following officers and committee were appointed for 1907:—President, Mr. James Beckett; Vice-President, R. Denne Bolton; Committee—Mr. James Kiernan, Mr. H. M'Laughlin, Mr. G. Goodfellow, Mr. H. Pemberton, Mr. B. W. Whyte, Mr. Thomas Connolly, Mr. James Martin. Hon. Treasurer, Mr. A. Roberts. Hon. Secretary, Mr. John Good, 55 Great Brunswick Street.

CLONTARF MAIN DRAINAGE.

At the last meeting of the Improvements Committee a letter was read from the Consulting Engineer, Mr. George Chatterton, pointing out that, in consequence of certain statements having recently appeared in the Press with regard to the estimate for the carrying out of the Clontarf main drainage, he felt that it was his duty to correct the misapprehension which seemed to exist in certain quarters respecting the estimated cost of the scheme proposed to be carried out by the Clontarf Commissioners, as compared with the estimated cost of the one now proposed by the Corporation. In order to remove any wrong impression that might exist with regard to the estimates for the Clontarf drainage, before and after the passing of the Boundaries Act, the Committee desire to have it distinctly understood that the Commissioners' estimate and Mr. Chatterton's estimate, who was Consulting Engineer for the Corporation before the Parliamentary Joint Committee, provided only for main intercepting sewer and pumping works to deliver the sewage into the city along the Coast road. It will thus be seen that the specific work estimated for by the Commissioners before the Parliamentary Committee was for one sewer along the Coast road, and Mr. Chatterton's estimate on the same occasion was based on that very scheme of the Commissioners. But Mr. Chatterton now advises that if the Commissioners were to properly carry out their work they would also have to provide for the construction of subsidiary collecting sewers, which is the largest item in his estimate for the present scheme. In preparing his estimate for the scheme adopted by the Corporation Mr. Chatterton had before him full details in connection with all the roads of the district where sewers would have to be newly constructed or re-constructed to meet the requirements of the system. This latter work, the Commissioners apparently never contemplated, and they did not estimate for.

REVIEWS OF CATALOGUES.

We have received from the Carron Company, Carron, Stirlingshire, their abridged catalogue of "Carron" general castings, illustrating a great assortment of iron goods suitable to the building and other trades. The Carron Company (one of the oldest and most celebrated in the iron industry of the whole world) have excellent facilities for the production of iron goods. They mine their own ore, smelt it with coal from their own collieries, and carry out all subsequent operations at their works at Carron, and are, therefore, in a position to turn out sound, reliable castings at lowest possible prices. The quality of their work is too well known to need emphasising, and, as a glance through this catalogue will show, the figures at which "Carron" castings are listed are very reasonable. Although the catalogue contains but a small selection from the company's immense range of manufactures, its contents are too varied to be detailed here. Amongst the items specialised in it, however, are the following:—Agricultural requisites, such as hay racks, boilers, troughs etc.; garden and restaurant tables, garden rollers; household articles, such as umbrella stands, scrapers, clothes posts, dumb bells, balusters; school requisites, such as desk and seat standards, brackets, etc.; and a large selection of specialties for bakers, tailors, and other trades. For builders' use, the catalogue illustrates a long range of goods, including air bricks and other ventilators, draining goods (traps, gullies, etc.) in great variety; rain water pipes and connections, gutters, wheels and pulleys, manhole covers, lavatory brackets—in fact, most things in iron that the builder requires. The catalogue is obtainable from the company at their head office, or from their Dublin branch, 44 Grafton Street, Dublin.

Dust Prevention.—We understand that the various municipal and other authorities who have renewed their contracts with the Akoma Syndicate for the treatment of their roads with the "Akoma" dust preventer this year include the Crown Commissioners, who have decided to use the above dust-layer for all their roads in Regent's Park during the coming season. It will be remembered that the larger portion of the outer circle was treated with "Akoma" last year, and that the result proved very satisfactory.

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Armagh.—The Committee of the Portadown Urban Council have approved of the following plans:—(1) The extension of Messrs. Spence Bryson and Co.'s factory; (2) a new workshop for the Portadown Foundry Company; (3) Twenty-five dwelling-houses to be erected in a new street off Castle Street by the Portadown Spinning Company.

Belfast.—County Courthouse Improvements.—Owing to repeated applications to the Judge of Assize for increased accommodation for the Bar, jurors, witnesses, and the Press, the County Council of Antrim and the City Council of Belfast decided to build a new front to the Courthouse, at a cost of £12,500. The plans of Messrs. Young and Mackenzie were selected, and a contract entered into with Messrs. Robert Corry, Ltd. The work was commenced in January, 1906, and is so far completed that most of the rooms are open for these (Spring) Assizes. The necessary additions to the County Courthouse have been planned so as to form a new front containing two new wings extending on each side of the fine hexastyle portico, and in front of the Crown and Record Courts, having a total length of 240 feet. In the additions every care has been taken to preserve the simple dignity of the original structure, and to harmonise the new and old work. On entering through the portico, access is given to spacious staircases which lead to the first floor; beyond these extend well-lighted corridors for the full length of the building. At the east side are placed two barristers' rooms—the larger 40 feet by 20 feet, and spacious rooms for jurors and refreshment-room and post and telegraph office. On the west side offices have been provided for the Clerk of the Crown and Peace and for the registrar of titles, with strong room in the basement, and a telephone office adjoining entrance porch for public use. All the offices have direct light through large windows hung with sashes and glazed with plate-glass. The windows at the end of the corridors on ground floor are fitted with specially designed stained-glass, having the monogram of the Antrim County Council in circular panel. All the rooms in the new wings are heated with low-pressure hot water, special radiators being placed opposite each window. The work has been carried out by Messrs. Musgrave and Co. The new building is lighted by electric light supplied by Messrs. Wm. Coates and Son, Ltd.; the consulting engineer being Mr. J. Woodside. On the first floor rooms are provided for male witnesses and female witnesses, with lavatory attached; Antrim Crown Solicitor's offices, local bankruptcy offices, and an inquiry-room and room for the Press. All the floors are covered with cork carpet, and plainly furnished. This has been carried out by Messrs. Gillespie and Woodside. The blinds are supplied by Messrs. Bell and Mayrs. All the rooms are numbered, and the name of each printed on the doors; and on referring to the notice-board at the entrance the public can ascertain the number of each room and where it is situated. When jurymen are wanted in the Crown Court, an electric bell will ring in the jurors' room and refreshment room. The witnesses' and jurors' rooms are perhaps the most useful additions to the Courthouse, as there was no accommodation for them at all in the old building. The plumbing work was done by Messrs. John Dowling and Sons.

Castlebar.—The Board of Guardians of Castlebar Union will to-day, 6th April, 1907, consider tenders for the execution of the following works in the Workhouse:—1. To repair and strengthen the roof of the fever hospital, including floor and ceiling repairs to No. 1 and No. 2 female wards. 2. To provide shelving for the main laundry store. 3. To paint, distemper, and repair master's apartments. 4. To enlarge door entrance to long shed store. 5. To raise dispensary garden wall. 6. To provide grease traps for kitchen and laundry floors.

The Board of Guardians of Castlebar Union will, to-day, Saturday, 6th April, receive tenders for the execution of certain work in connection with providing additional office accommodation adjoining the boardroom in Castlebar Workhouse.

Cork.—Tenders were received for the erection of three dwelling-houses near Wellington Bridge, Cork, in accordance with plans and specifications prepared by Messrs. W. H. Hill and Son, Architects, 28 South Mall, Cork.

Castletownberehaven (Co. Cork).—Tenders are invited for a new Church at Castletownberehaven, Co. Cork, estimated to cost about £8,000. Quantities are being prepared by Mr. D. W. Morris, 68 Harcourt Street, from whom all particulars may be had. Messrs. Doolin, Butler, and Donnelly are the architects.

Co. Wicklow.—Plans and specifications for the under-noted work have been prepared by Mr. J. C. Wilmot, C.E., 3 Lower Merrion Street, Dublin:—

A mortuary chapel is being built at Delgany Parish Church as a memorial of the late Dr. Browne. It is being erected by his executor, Mr. Thomas Hewson, B.L. Mr. Frazer, of Bray, is doing the work.

Mr. Robert Heatley, Bray, is making various improvements and additions to Ballyorley House, Enniskerry, the residence of the Right Hon. Viscount Monck.

The Bray Golf Club Committee are making extensive additions and improvements to their Pavilion, and it is proposed to heat it by low pressure hot-water system and radiators.

Dundalk.—The Urban District Council received tenders for the erection of a sanitary convenience, gate piers, and other works, at Town Hall, Dundalk, according to plan and specification prepared by M. Sellars, Esq., Town Surveyor.

Dublin.—At the last meeting of the North Dublin Board of Guardians it was moved:—"That the resolution of the Council passed at the meeting held on the 6th March, 1907, accepting the tender of Messrs. J. and M. Clarke to erect eleven cottages in Blackhorse Lane, to be built of black stone, at the rate of £136 each, be rescinded, but that Messrs. Clarke's alternative tender to erect them of brick at the rate of £134 10s. be accepted." Mr. Baggot said that the reason for his action in this matter was that the black stone, of which it was proposed to build the houses, was of too cold a nature. Mr. Segrave seconded the motion. Mr. Goggins objected to any alteration of the tender. Mr. Morris, the Clerk of Works to the Council, said that the stone, if properly used, would make very good houses. Mr. Goggins—Very good houses for a strong people. After some discussion, the motion was lost.

The following tenders have been accepted by the North Dublin Rural District Council for the erection of fourteen labourers' cottages in their district:—Mr. Clarke, Clanbrassil Street, 11 cottages at Blackhorse Lane at £136 each; Mr. Leary, Baldoyle, for three cottages at Baldoyle at £142 each.

Messrs. H. and J. Martin, Grand Canal Street, are at present carrying out extensive alterations at the College Green Post Office, consisting of enlargement of parcel office, re-flooring throughout on the ground floor, and remodelling of the heating, lighting, and sanitary arrangements. The post office proper will be practically arranged to twice its usual size, the counter extending right round the two sides of the building, instead of one side only as heretofore.

Messrs. Norman, Robinson and Brunker, 17A St. Andrew Street, Dublin, have obtained the contract for the electric lighting of 66-8 Grafton Street, Dublin, which has just been rebuilt under the designs and specifications of Mr. L. A. McDonnell, 9 Hume Street. They have also installed the electric light into the Moira Hotel, Trinity Street, Dublin.

The following tenders have been received for alterations and additions to Clonsilla Lodge, Clonsilla, the residence of Mr. Howard St. George, according to the designs and specifications of Mr. R. Caulfeild Orpen, 13 South Frederick Street, Dublin:—M'Loughlin and Harvey, £1,658; S. Bolton and Son, £1,748; R. E. Mellon, £1,817 10s.; W. Beckett, £1,830; J. and P. Good, £1,852 10s.; J. Kiernan, £1,860 12s.; J. P. Pile, £1,937; J. Pemberton and Son, £2,005. Messrs. M'Loughlin and Harvey's tender accepted.

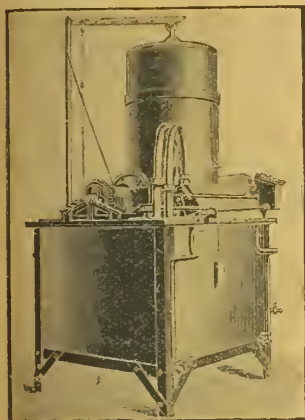
The Pembroke Urban District Council invite tenders up to noon 5th inst. for the erection of a gardener's and caretaker's house and all works connected therewith at Ringsend Park, Co. Dublin, according to the designs and specifications of Mr. Edwin Bradbury, 8-9 Nassau Street, Dublin.

Estimates have been invited for the erection of a gate lodge at Mount Usher, Ashworth, the residence of Mr. George Walpole, of Messrs. Walpole Bros., Ltd., Suffolk Street. The plans and specifications are by Mr. Geo. T. Moore, A.R.C.S.I., 1 Foster Place, Dublin.

Tenders are invited for the alteration of 48 Henry Street, Dublin, for Mr. J. Purcell, Talbot Street, according to plans and specifications of Mr. Geo. T. Moore.

Calway.—Further additions are being built to Castle Maggarret, Claremorris, the country seat of Lord Oran

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more and Browne, according to the designs and specifications of Mr. R. Caulfeild Orpen.

Irvinestown.—Tenders will be received on April 8th by Mr. George Chittick, Irvinestown, for the erection of a number of houses according to drawings and specifications to be seen with him, as prepared by Thomas Elliott, Architect.

Kingstown.—Mr. Frank Weaver, Kingstown, has been awarded the tender for re-building 10-11 Glathule; amount of tender, £1,200. Designs and specifications by Mr. Moore, Foster Place.

King's County.—Mr. R. Caulfeild Orpen is at present preparing plans for a Glebe House, Clara, and tenders will shortly be invited.

Lisnaskea.—The Lisnaskea Rural District Council will to-day, Saturday, 6th April, appoint, subject to the sanction of the Local Government Board, a competent person to act as architect and engineer for the purposes of a Scheme (No. 5) which the Council proposes making under the Labourers Acts.

Limerick.—The Committee appointed to provide a site for the proposed Central Technical Institute have, conditionally, closed a bargain for a site on the Military Road, now occupied by a building known as Roden House. The plot contains some 22,000 feet of what is regarded as excellent building ground, and the owner is prepared to accept for the fee simple a lump sum of £1,000—free of rent. The proposal will come up for consideration at next meeting of the Corporation, and also at the next meeting of the City Committee of Technical Instruction.

Londonderry.—Tenders will be received to-day, 6th April, for building a shop and dwelling-house at Fountain Street, Londonderry, for Mr. George Bates, according to the plans and specification of Mr. Patrick H. Elliott, Architect, Castle Street, Derry.

Naas.—The Board of Guardians of Naas Union have received tenders for building a medical officer's residence, dispensary, and out-offices in the village of Kill, including the formation of yard, the construction of drains, the erection of yard wall, entrance and side gates, closets, baths, lavatory basins, etc., and providing a hot and cold water supply for the premises.

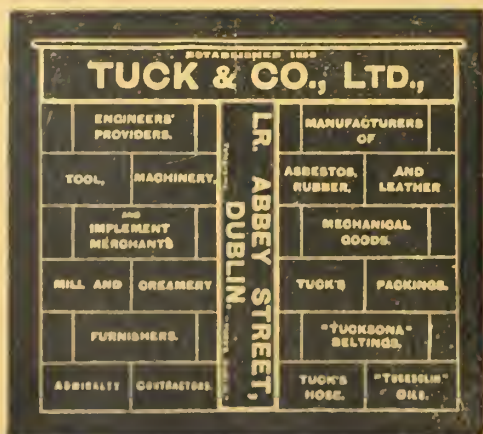
Roscommon.—The tender of Mr. Wm. Beckett, Percy Place, Dublin, viz., £1,150, has been accepted for alterations and additions to Carrowroe Park, Roscommon, the residence of T. C. E. Goff, Esq., D.L. The designs and specifications are by Mr. R. Caulfeild Orpen.

ANSWERS TO CORRESPONDENTS.

Opening in Builder's Office.

J. C.—We cannot offer any special advice as to how your son should proceed in order to get into a good Dublin builder's office, other than that he should arm himself with a few good testimonials and some evidences of what work he can do, and approach some of the leading firms in Dublin. The building trade is, however, particularly slack at present, and it is, of course, evident builders have many more applicants than they can possibly find employment for.

Mr. H. Greville Montgomery, M.P., is giving a luncheon on the occasion of the opening of the Building Trades Exhibition by the Right Hon. the Lord Mayor (Sir William Treloar).



ARCHITECTURAL ASSOCIATION OF IRELAND JOTTINGS.

The recent exhibition of members' work has attracted a surprisingly large number of sketches, drawings, and photographs. Amongst the exhibitors were to be noted Messrs. L. A. MacDonell, R. Caulfeild Orpen, R.H.A.; J. Geoghegan, J. J. Lynes, A. Millar, H. G. Leask, and some remarkably able pen and ink sketches by E. Bradbury. It was assuredly surprising to many to find evidence of so much artistic talent hitherto latent amongst the members, for most of the former A.A. exhibitions have been confined to architectural work, and while at these skill in pen and pencil has been clearly depicted, brush work, to any great extent, has naturally been barred.

* * * *

The studies of "People he has Met," by our President, are worthy of special attention for their vigour and the portrayal of types of character which he obtains with a few strokes of his facile pen.

* * * *

The Hanging Committee are to be congratulated on having gathered together so representative a collection of pictures in the short time at their disposal, and it is a pity that the forthcoming exhibition of the R.I.B.A. students' drawings followed so closely that longer time was not permissible for the pictures to remain on view.

* * * *

A general meeting of the Architectural Association of Ireland was held at 15 South Frederick Lane, the President, Mr. Joseph Holloway, M.R.I.A.I., in the chair. There was a fair attendance. Mr. Shaw read a paper on the "Evolution of Earthenware and Fireclay Goods." He dealt with the advance of sanitation during the last quarter of a century, which, perhaps, received its first impetus from the serious illness of His Majesty in the early seventies. Since that date thousands of inventions have been patented, all in the direction of protecting the labourer in his cottage, and the King in his palace, from unsanitary surroundings. Sanitary ware should be designed so that all parts are readily accessible. Having described the process of manufacture, the lecturer proceeded to explain the various methods of forming sanitary goods, the "burning" in the "biscuit" and "box" kilns, the application of the design, and the manufacture and finish of lead glaze. It is a curious fact that it takes from eight to nine weeks to complete the manufacture of fireclay articles, hence the delay that often occurs in obtaining them. A vote of thanks was proposed by Mr. Charles Ashworth, F.R.I.B.A., seconded by Mr. J. H. Webb, M.R.I.A.I., and passed by acclamation.

* * * *

The house list of the new officers, proposed by the Committee, was read prior to the meeting, premonition of the close of yet another session. Mr. R. M. Butler's name has been put forward for the post of President, and it would be difficult to find one who deserves better of the Association, with which he has been intimately acquainted since its inception.

* * * *

A visit to the shops in progress of building at No. 66-9 Grafton Street, from the designs of Mr. McDonnell, architect, took place last month. Eleven members of the A.A.I. attended. Mr. F. Sparrow conducted the party, and Mr. J. Pemberton, contractor, also attended. The former four houses are being supplanted by three new ones; giving better frontages; the central shop has, however, a small one partitioned off from it, with a suitable basement attached. Part of the site extends back to the lane, and will have rooms over the rear portion. Above the shops accommodation will be found for well-lit offices with bay windows to Grafton Street, which will introduce variety into the street frontage. The standard of work being carried out by Messrs. J. Pemberton and Son, needs no comment.

* * * *

It is noticed that there is a fairly good attendance at these meetings by certain members, but it is a pity more pupils do not attend, and benefit by what is apparently found of advantage by their seniors. We hope it is not from lack of facilities on behalf of their principals.

"WEE MACGREGOR."

ENGINEERING SECTION.

ITEMS.

It has recently been proposed to extend the electric light to the suburban districts of Cork City. With this object in view, a deputation from the Cork Rural District Council, consisting of the Chairman (Mr. Michael Aherne, J.P.), the Clerk (Mr. John Cottery), and five members, waited on the officials of the Board of Trade at Whitehall. The deputation met with a highly favourable reception, and it may be assumed that the interview will have a satisfactory result.

* * * *

The Metropolitan Water Board recently issued a regulation that baths were to be limited in contents to 50 gallons, presumably to economise water. It can easily be proved that an ordinary bath under such requirements would only be about twelve inches deep. The caustic comments in the Press have helped the Board to see their regulation in true perspective, and the limit has now been increased to 80 gallons, but whether this is to the overflow or to the rim still remains undefined. We occasionally hear of grandmotherly legislation, and more frequently of the delight of the Englishman in his bath. When legislation fixes the amount of water he is to wash in, and that at such a limit that he can only perform his ablutions in instalments, we are of opinion that such legislative farce will be difficult to beat for carelessness and want of thought.

* * * *

The offer by the *Daily Mail* of a prize of £10,000 to the inventor of an aeroplane which will safely traverse the distance between London and Manchester, under certain specified conditions, is doing much to stimulate the design and manufacture of small, light, and powerful motors. From engines recently made, it would appear that over 200 aeroplanes are in process of construction throughout the Kingdom, and that the competition is appealing to all classes. One manufacturing company state that they have three engines in hand ranging from 35 h.p. to 180 h.p., the latter of which will cost about £1,200, and will drive a 7 ft. propeller at 1,500 revolutions per minute. These engines are naturally constructed in the lightest possible manner consistent with strength and safety, and weigh about 2½ lbs. per horse-power. Whether the problem of aerial flight will be solved by the widespread interest taken in the future trials, is difficult to foretell, but there is little doubt that, in the endeavour to obtain speed and power out of lightly-built engines, the methods of motor transit on *terra firma* will incidentally receive material benefit from the inventive genius which, by means of a golden spur, is now being applied to the subject.

* * * *

The disaster to the battleship *Jena*, following closely on other serious accidents in our own and foreign Navies, seems to point clearly to the fact that, in designing these huge engines of war, weapons have been forged almost, if not quite, as dangerous to the user as to the foe. This is the more obvious when it is recollected that in the case of the *Mikasa* and the *Aquideban*, as in the case of the *Jena*, the disasters occurred without warning when the vessels were presumably safe in port. But while extending sympathy to the unfortunate sufferers, it cannot be overlooked that the wonder is not that such catastrophes occur, but that they are not far more frequent. In the rush for building huge warships, heavily armed, and fully engined for great speed, in which vessels electric, steam, and hydraulic power are utilised in connection with their motion and armament, and for the convenience of the crew, and in which are stored high explosives, there is little to marvel at that occasionally some one thing will go wrong, and, in spite of the utmost precaution that man can devise, one of these ocean monsters will turn and rend those who have hitherto held her in control. It is, however, likely that the latest accident, by its very nature, will help to mitigate the present condition of affairs, and that further effort will be made to assure safety to Jack and Jean afloat, at all events, in the piping times of peace.

The rapid increase in the use of incandescent mantles has resulted in the price of thorium nitrate, a chemical to which the incandescent property of gas mantles is due, being advanced. The quotations mark a rise of about 30 per cent., and the rise is unlikely to be final. The figures represent an extra cost of ¼d. each in the manufacture of gas mantles, which will in all probability be swollen to a penny to the small consumer. However, the increased price is not prohibitive, when the increased candle-power of modern fittings is compared with the old fish-tail burner with its three candle-power per foot of gas consumed.

* * * *

By the return of the "Moderate" majority to the London County Council, the electric supply for London enters on a new phase. The recently elected body receives from its predecessor a legacy, in the shape of the Power Bill, which it certainly would rather be without. The gigantic scheme which the late Council was busily engaged in promoting has undoubtedly been crushed, but it remains uncertain whether the Moderate party will pursue the Bill in a modified form, in order to retain control of a future centralised supply. The authorised companies, which are at present supplying the metropolis with electricity, have a Bill before Parliament empowering them to interconnect and co-operate. This, at first sight, appears to be a right step towards economy of generation and distribution, and consequently of supply. But there is a danger that the municipal "trust," held up as such a bogey to the electorate during the last few weeks by a shrieking Press, may be replaced by a trust formed by a combination of dividend-earning companies, and unless the Council seeks and obtains a strong measure of control, the lot of the small consumer may, in the end, be anything but improved.

* * * *

Mr. Grierson, of the Great Western Railway, offered some interesting evidence, before the Commission sitting at Westminster, on the question of railway-owned canals. It is a common opinion that the canals are smothered by the railway companies in order to serve their own selfish interests. But Mr. Grierson states that the canals have been absolutely deserted, and that the 200 miles of canal owned by his company cost for maintenance £7,000 in excess of the annual receipts. The necessity for rapid transit has much to say to the preference for the permanent way, but still it would be thought that there are some goods that could be more profitably conveyed by water, and for which expeditious delivery is not a *sine qua non*. In the forefront of such goods, one would be inclined to place coal, but Mr. Grierson relates that even this traffic has passed to the railway. If such material cannot, in the eyes of the consignor, be profitably water-borne, a remedy must be looked for beyond the powers of the railway company, and it is to be hoped that some practical remedy will be suggested by the Commission. If the public will, under no circumstances, use the canals, the companies can scarcely be blamed for their deserted appearance.

* * * *

The engine driver who was held mainly responsible for the railway disaster at Elliott Junction, in December last, has been found guilty of failure of duty, but with a strong recommendation to the leniency of the court. He was sentenced to five months' imprisonment. One cannot help but sympathise with Gourlay in the position in which he now finds himself, at the age of sixty, after forty-seven years unblemished record in the service of the North British Railway Company. The weather conditions at the time of the accident were almost beyond description—a "boiling mass of snow," as stated by one witness; the block system had broken down, the semaphore signals were out of order, and fog signalling had not been substituted. Added to this, Gourlay was driving his engine tender first, from which the coal was being blown hither and thither by the force of the gale. The ordinary traveller can scarcely wonder that, against such a combination of adverse circumstances, even such an experienced driver failed. The result of his failure led to the loss of twenty-two lives, and his own imprisonment. It can only be hoped that after Gourlay's penance is over, the Railway Company will bear in mind his former services, and that his one lapse will not result in the overshadowing of the years of life that remain to him.

The season for engineering and public health congresses is again approaching, after the close time during which various experts air their views locally to more or less numerous and interested audiences. It is a moot point whether the verbose delegates who so frequently declaim at congresses, do much lasting good beyond the rather personal benefit of keeping their names before the public, a process which is often subsequently extended, by a prolonged correspondence in the technical journals regarding what they did or did not say and mean. There is, however, a gain to the city in which the delegates gather, not only from a sordid monetary point of view but from the fact that the local officials have to furbish up their knowledge to be able to give thrust and counterthrust to the visitors, if such be required during the sessional meetings. We note with some degree of pleasure that at a recent conference of the principal Scottish Corporations, a resolution was adopted calling attention to the undesirability of the Royal Sanitary Institute and the Royal Institute of Public Health holding separate congresses each year, and that a representation be sent to these bodies urging them to hold a combined congress or to hold them separately in alternate years. This year, for instance, the former body holds a meeting in Dublin, at which a unique opportunity will be afforded the delegates to visit the International Exhibition; while the latter body, having tasted the delights of our Southern Capital last summer, will this year visit Douglas, Isle of Man. To appoint and pay the expenses of delegates to these and other congresses is becoming an annual burden to local authorities, which is at length being recognised. Whether the executives of the two Institutes will be ready to take the hint conveyed to them is open to question. There will be, undoubtedly, much discussion before a proper conclusion is arrived at.

* * * *

From time to time the question of reforestation is raised in the public Press, but only spasmodically, and the importance of the subject does not appear to be realised by the farmer, or by his representatives on the various Councils throughout Ireland. A suggestion was recently made that St. Patrick's Day should be celebrated also as an Arbor Day, to be signalled by a general planting throughout the land. Unfortunately, the pioneers of the movement meet everywhere with apathy or undisguised hostility, and the duty which Irishmen owe to future generations is either shirked or unrecognised. There is much talk about the land and its ownership, and the poverty of the tenant-farmer, and he and his representatives are fond of making excursions into a highly-coloured past, or wrestling all that is possible for themselves out of the present. But of posterity no heed is taken. "Each one for himself, and the deuce take the hindmost," is gradually becoming the guiding principle of those who up to recent times have been respected as the most unselfish people in the world. But if the plea of duty fall on deaf ears, it is possible that the fact of reforestation increasing the economical value of a holding may have more weight, especially now that scientific authorities are pointing out the serious injury that has been suffered by the country owing to the long-continued denudation of its timber. This reckless work has in no way ceased, even after the transfer of land from the landlord to the tenant, the Councils decline to assume pecuniary responsibility in the matter, declaring it to be one for the national Government, to which so much is lightly left, in spite of its alleged defects. We might suggest that the Gaelic League should turn its attention to the question, for the preservation of a country's woodlands is, at least, of equal importance to that of its language. And we can imagine no better gift to the motherland than that of a general tree-planting upon each anniversary of the National Saint.

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BIBING ARCHITECTS.

Prominent among the professions which have welcomed the Prevention of Corruption Act, 1906, is that of the architect. In an interview with one of the representatives of the Manchester "Daily Dispatch," Mr. Paul Ogden, hon. secretary of the Manchester Society of Architects, declared that his profession was subject to great temptations. The architect had power and control over everything in connection with the particular work in hand, and there were many openings for an unconscientious man to wrongfully receive commission.

In the course of last year most of the architects in Manchester received a circular from a person, evidently just starting in business, openly offering commissions to any who would specify his particular goods for use in buildings

in which such articles were needed. "He was evidently a very simple-minded man," explained Mr. Ogden; "but the circular made many of our members indignant, and a council meeting of the society to some extent anticipated the effect of the Prevention of Corruption Act by passing a resolution:—

That this Council strongly condemns the offer or acceptance by tradesmen, agents, architects, and others of all or any commissions to induce business; and that such practices shall be construed as being calculated to bring discredit on the profession, as set forth in Article 64 of the Articles of Association.

"The Article referred to," continued Mr. Ogden, "gives us power to turn a man out of the Manchester Society—and there is a similar provision in connection with the Institute—if he breaks the rule.

"There are many ways in which it is possible for an architect to obtain commissions, especially in connection with the specifications. In these he might specify, for instance, Jones's or Smith's or Brown's particular make of tiles, on condition that Jones or Smith or Brown makes it worth his while in the shape of a commission. If he were caught doing this the society would promptly expel him; but that was all it could do up to this year. Now, fortunately, by means of the new Act, the law gets at him and treats him as a criminal."—"The Master Builders' Association Journal."

IMPORTS.

Port of Dublin.

March 23—Per Winga, from Goteborg, 6 cases turned wood, 25 bags gravel, 1,319 pcs., 1,490 bdles. planed boards, 4,473 bdles. laths, 476 pcs. deals, 528 bdles. mouldings, 230 doors, to order; per City of Cadiz, from Hamburg and Rotterdam, 2 cases window glass, 10 cases slates, 1 case marble, to order; per Lilla, from Bridgwater, 108 tons bricks, etc., W. and L. Crowe; 1½ tons bricks, etc., J. M'Ferran and Co.

March 25—Per Elinore, from Fredrikstadt and Christiania, 70,075 pcs. planed boards, 15,517 pcs. scantlings, 1,000 bdles. laths, 986 pcs. poles, to order; per Velinhili, from Port Dinorwic, 100 tons slates, R. Martin and Co.; per C. S. Parnell, from Glasgow, 120 tons bricks, C. and J. Burke, Ltd.

March 26—Per George and Mary, from St. Servan, 150 tons slates, J. Kelly and Son.

March 27—Per Nelinhili, from Port Dinorwic, 100 tons slates, T. and C. Martin, Ltd.; per Lady Hudson-Kinahan, from London, 1,000 sks. cement, T. Dockrell, Son and Co., Ltd.

April 2—Per Erling, from Fredrikstadt, 153,356 pcs. floorings, 11,036 pcs. scantlings, T. and C. Martin, Ltd.; per Penrhyn, from London, 340 tons cement, Brooks, Thomas and Co., Ltd.

♦♦♦♦

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FORECAST OF EXHIBITS.

Messrs. Kirchner & Co., Sawmill Engineers, Tabernacle Street, London, E.C. One of the most interesting exhibits promises to be that of this firm's latest woodworking machines at Stand No. B 4. Messrs. Kirchner are well known to the trade throughout the United Kingdom for the sound quality of their manufactures. It is their constant endeavour to keep more than abreast of their customers' requirements in the matter of improvements which will result in saving of labour, and ease of adjustment in operation. That their endeavours have proved successful will be amply testified by an inspection of these up-to-date machines. In Ireland their customers include some of the best known builders, timber merchants, cabinet makers, etc., in the country; and Kirchner plants can, therefore, be seen in operation by our readers without the necessity of crossing the water. The following are a few of the machines which will be shown at the Exhibition:—No. 1 H.N.A. Kirchner's improved ideal band saw. This machine is the first of its type in which the unique principle of bearings on both ends of the pulley shafts has been introduced. The bearings are all of phosphor bronze, and are self-lubricating, so that the revolving spindles are practically running in an oil bath. The machine is made in all sizes, with wheels from 24 in. to 42 in. diameter. Since its introduction two years ago over 1,500 have been sold, and at the present moment the firm has over 270 on order. No. 2 Kirchner's improved C.C.A. type of three and four-cutters, specially designed for joinery works, builders, contractors, etc. No. 3 F.Q. new patent chain saw mortising machine, a heavily designed tool with compound slide table. This is a very rigid machine, and is most rapid and economical in action. No. 4 L.Y.Y. Kirchner's patent improved continuous roller feed saw bench, with extra heavy frame in one solid casting. This machine embodies several excellent features, and will well repay inspection. No. 5 is their B.G. large general woodworker, with tables 8 feet long. This machine is suitable for planing out of twist, chamfering, rebating, jointing, grooving, and is also adapted for straight and circular mouldings. No. 6, the heavy, improved horizontal boring and mortising machine, a thoroughly up-to-date tool, highly recommended for contractors, builders, carriage and wagon works. No. 7 is their G.G. patent variety moulding machine, suitable for straight and irregular mouldings, rebating, raising panels, fluting, trenching, etc. In addition to the above machines, many smaller tools, including grinding and sharpening machines, will be shown, the whole making a most complete exhibit of woodworking machinery.

Vulcanite, Ltd., Laganvale, Stranmillis Road, Belfast. This firm's exhibit, with a frontage on two rows, will consist of a specially constructed stand upon which a number of photographs will be shown illustrating the buildings where their patent vulcanite roofing has been adopted. The roof of the stand will be constructed so as to show the type of roof tanks which the firm are constantly lining. This roof tank is reached by a spiral staircase from the interior of the stand, and will be filled with water, so as to demonstrate that the vulcanite roofing is absolutely impervious to water. On this stand will be shown a model illustrating how the roofing is laid, and also samples of vulcanite sheet asphalt, for damp course, similar to that which has been used in the new Town Hall, H.M. Statue, and the new Technical Institute, Belfast, besides a large number of well-known buildings in the United Kingdom. There will also be samples of vulcanite sheet asphalt for roofing sloping roofs of farm buildings, sheds, brick kilns, and other structures of a similar nature. This asphalt has been a great success, and is used by a number of the leading railways in the United Kingdom. It is a speciality for sloping roofs, being distinct from the patent vulcanite roofing for flat roofs. This exhibit is of especial interest to us as being that of an Irish firm, and it is certain, on its merits, to attract great attention.

Messrs. Walter Carson and Sons, Grove Works, Battersea, London, S.W., who are well known in this city from their long-established depot on Bachelor's Walk, will have a fine exhibit of their specialities. Prominent amongst these will be their vitrolite paint, which is made in two shades, white and light stone. This paint has been a great success since its introduction, and we are informed that it compares favourably with white lead in colour, covering power, and durability. The nature of vitrolite renders it

practically impervious to heat, cold, wet, and moisture. It is, therefore, particularly useful for horticultural work, and in this connection the use of plastine, an imperishable putty (which will be also exhibited), is strongly recommended. Another noticeable feature on Messrs. Carson's Stand will be japolite, a Japan paint possessing remarkable elasticity, brilliancy, and durability. This material is, considering its quality, exceptionally cheap, being only 18s. per gallon. Other exhibits on this Stand will be La Belle enamel, bath enamel, and aluminium paint, as well as muraline, which has now been on the market for some years. The last named has no superior as a washable water paint, its great feature being that it is sold in a dry powder, and that it is lime-resisting. Owing to these characteristics it is extensively used with great satisfaction all over the world. Alongside of these specialities Messrs. Carson will make a telling display of their liquid paints, in 42 shades, and also of their varnishes and varnish stains. A special attraction of their Stand will also be an extensive show of dry colours and stainers, of which they are large makers. Messrs. Carson are amongst the best known of British paint manufacturers. They are contractors to H.M. Government, Colonial Governments, and all of the largest public companies. Their specialities have achieved a world-wide reputation, and for this reason alone their Stand will be one of the most prominent features of the Exhibition.

Messrs. Fastnut, Ltd., 60 Aldermanbury, London, E.C., will occupy Stand No. 197 (Gallery) with a display of their "Fastnut" washer in all sizes, both for hexagon and square nuts. This washer is an ingenious device for holding nuts and screws under all circumstances, but particularly where vibration has to be resisted. The washer is, therefore, most useful on steamships, agricultural implements, motor cars, vehicles, cycles, machinery of all kinds, and, in fact, wherever nuts are used. As exemplifying the practical value of these washers, we may mention that the Accident Insurance Co., Ltd., make a reduction of five per cent. on their premiums for insurance of all motor cars fitted throughout with "Fastnut" washers.

Messrs. Machin and Koenig, 17 and 18 Roscoe Street, London, E.C., will exhibit compoboard, which is extensively used in the building trade. Compoboard is made of wooden slats 4 ft. long and about 1 in. wide, joined in an endless web so that the 4 ft. length of the slat forms the width of the complete board. It is, therefore, always 4 ft. wide, and its special feature is that it can be obtained in any length from 4 ft. to 18 ft. It can be easily worked with ordinary carpenter's tools, and, when fixed, it can be immediately distempered, painted, or papered. Compoboard is a little cheaper than lath and plaster for walls or ceilings, and it is better in a great many respects. In the first place it is immeasurably quicker to put up and to cover, and there is no waiting for drying weather. Again, compoboard ceilings cannot crack or fall down, and its surface lends itself readily to painting, papering, distempering, graining, etc. It can be nailed or screwed, and cut with an ordinary hand-saw, in addition to which it is an efficient non-conductor, so that it protects against excessive heat or cold. This firm will also show veneered panels, made in plain and figured oak, mahogany, walnut, birdseye, maple, rosewood, chesnut, lacewood, etc. These are suitable for high-class dados and panellings, and are extensively used for piano panels, furniture, picture frames, desks, and table tops, etc. Being veneered on plywood they are not liable to shrink, crack, or split. Panels of alder and birch plywood will also be exhibited. These are suitable for backs of furniture, drawer-bottoms, trouser-stretchers, and for a variety of other purposes. This plywood is marketed at an extremely reasonable figure, and is waterproof.

Messrs. Sharp, Jones and Co., Bourne Valley Pottery and Rock-Concrete Tube Works, Parkstone, Dorset, will be exhibiting, among other goods, the following:—Rock-concrete tubes for main sewers, culverts, well-linings, etc., from 15 in. to 42 in. diam.; rock-concrete manholes; Brandram's patent joint for concrete tubes, glazed stoneware pipes and fittings, manufactured from selected Dorset clays; the patent "B.V.P." and the "Branksome" yard gullies; Hassall's double-lined, stanford, and double-seal joints; salt-glazed bricks, engineering bricks, and concrete double-lock roofing tiles, etc. Rock-concrete tubes have

been in use for the past thirty years, and are made of a very dense and heavy concrete, the result of careful selection and combination of the most suitable materials, manipulated by processes calculated to secure the utmost value both of the matrix and the aggregates employed. There is no projecting socket, the joint being contained in the thickness of the pipe itself. As showing the strength of these tubes, it may be mentioned that they have been tested by an eminent engineer against crushing strain by the unsupported tube being loaded to the extent of more than 4,000 lbs. before signs of cracking were shown. The other specialities of this firm will be equally deserving of inspection.

* * *

Messrs. J. Sagar and Co., Ltd., Canal Works, Halifax. This well-known firm, who are makers of high-class wood-working machinery, will be exhibiting the following machines:—"Premier" hand and power-feed surface planing, thicknessing, moulding, etc., machine, semi-automatic chain cutter and hollow chisel mortising machine, improved band sawing machine, patent automatic dovetailing machine, canting table dimension sawing machine, hand planing, jointing, moulding, etc., machine, semi-automatic hollow chisel mortising and boring machine, improved mortising and boring machine, improved circular saw bench, plane iron grinding machine, patent double spindle moulding, shaping, trenching and recessing machine, vertical spindle moulding and shaping machine, and single belt sand-papery machine. All of these machines are the most modern of their respective types, and of a quality in keeping with Messrs. Sagar's reputation. Most of them will be shown in operation.

* * *

J. A. John, Ltd., 73 Camden Road, London, N.W., will be represented at the Exhibition by the following articles, which are specialities of the firm:—John's patent chimney cowl and ventilator, John's patent "Squirrel" steam washer, John's patent Galloway stove. The first of these, the patent cowl and ventilator, is a very ingenious invention, possessing a high extractive power, and being instantaneous and noiseless in motion. It affords protection against bad draught and smoky chimneys, and ensures absolute consumption of fuel, thereby leading to economy in coals, reduction of soot formation, and increase of heating power. It is provided with a patent storm fastener, so that the hood cannot be blown away. The "Squirrel" washing machine, of which a description has recently appeared in these pages, is a capital article made in a number of sizes, from the smallest suitable for small households, to the largest adapted for laundries. John's portable Galloway stove is designed for workshops and factories, large store-rooms, shops and exhibition halls, waiting rooms, gymnasiums, etc. It will burn coal, coke, or coal blocks, and gives a great amount of heat for a small consumption of fuel. Particulars of all these articles can be had from the manufacturers at the address given above.

* * *

George Jennings, Ltd., Hydraulic and Sanitary Engineers, Lambeth Palace Road, London, S.E., will show sewerage and sewage disposal fittings, comprising models of patent automatic revolving and travelling distributors, with syphon feed. Full size, 80 feet, revolving jointless sprinkler centres of improved type, fitted with automatic governor for preventing centrifugal force and effecting a uniform distribution with varying flows. One 90 feet revolving sprinkler centre, fitted with special screwing arrangement. One 40 feet revolving sprinkler centre. Coupled auto-mechanical low draught dosing syphons for feeding sprinklers intermittently. Patent gauging apparatus for sewage or water-works filters, which indicates the rate of flow of the liquid applied. Patent false floor tiles for ventilating and draining percolating filters, contact beds, and water filters. Models of domestic filter for sewage purification, self-cleaning screen. Sewer flushing syphons. Drawing of sewage disposal works on the continuous and contact systems. The firm have recently put on the market an entirely new automatic travelling distributor for rectangular beds, the cost of which is very low. This is fed from a trough or troughs on one or both sides, or down the centre of the bed, and the discharge is uniform. Messrs. Jennings have effected important improvements in modern sewage disposal plants, and their enterprise and capacity are as widely recognised as is the quality of their products.

* * *

Messrs. Smith and Wellstood, Ltd., Bonnybridge, Stirling-shire, will display on Stand No. 168 a great variety of their well-known stoves and ranges, including the following:—"Wellstood" patent ranges, a series of very high-class kitcheners, with flues of iron construction throughout, with patent foot-pedal opener and press-down latch to crows,

packed oven doors, hot blast oven ventilators, heat indicators, indicating damper rods, smoke consuming fire-cheeks, enamelled base, projecting hob, etc. These ranges are amongst the most perfect on the market, and the working of one will be fully demonstrated. "Wellstood" grates in exquisite armour bright finish, and in many different designs, mostly belonging to periods during the 18th century. Patent continuous burning "Esse" stoves, for anthracite or coke, in various sizes and designs, several being coated with a very perfect enamel. One of these will be shown in use, and its working will be fully explained. This firm has a Dublin branch at 33 Parliament Street, where all these specialities may be inspected.

* * *

Mr. H. Hart, 29 Settles Street, Commercial Road, London, E., will have a fine exhibit of every description of drain cleansing and chimney-sweeping machines. These will consist of drain-cleansing machines pure and simple, and also combined machines for drain and chimney-cleaning. All are fitted with malacca canes only as being most suitable for the hard wear and tear of drain cleaning. Simple interchangeable brass screws are fitted riveted on to the canes, and all the iron used in the drain tools are wrought-iron forgings, not castings. The accessories include whalebone brushes, jointed scrapers with and without guide wheels, coring irons, hooks, clearing wheels, Archimedean and double-worm screws, flexible rods (for crooked chimneys, flues or drains), etc. Expanding drain-stoppers and a variety of other apparatus suitable for builders, chimney-cleaners and others, will go to make up one of the best exhibits of its kind in the exhibition.

* * *

The Associated Portland Cement Manufacturers (1900), Ltd., Dixon House, 72 Fenchurch Street, London, E.C., propose to exhibit on their Stand specimens of the following, viz., samples of slurry, clinker at various stages, both by the Rotary and Intermittent kiln processes; finished cement—coarse and fine ground; samples of their special "Ferrocement" brand for reinforced concrete construction; briquettes of various ages for testing tensile strain; complete testing apparatus in conformity with the requirements of the British standard specification (practical tests will be carried out on the Stand); mouldings, etc., in plaster of Paris, Keene's, Parian and Roman, etc., cements. Pamphlets descriptive of the company's works and process of manufacture, will be distributed at the Stand on application. These will form the main exhibits, but they may possibly be added to prior to the opening or during the course of the Exhibition.

* * *

John Tann, Lock and Safe Engineer, 11 Newgate Street, London, E.C., will show a variety of his specialities, of which the following will be the chief:—Bankers' fire, burglar, and drill-resisting doors in steel; vestibule complete with grille (of great strength and invulnerability), strong-room doors for deed and book-rooms, and also for bullion-rooms; plate-room and plate closet doors; also an exhibit of new special strong-room doors at the lowest prices at which these goods have yet been marketed; party-wall or tariff doors to meet the requirements of the Fire Offices Committee; steel portable plate-closets; "Anchor Reliance" new special commercial safes, solid at all twelve corners. These are amongst the most up-to-date safes on the market. There will also be a variety of safes for every purpose, i.e., for securing deeds, books, jewellery, plate, etc.

* * *

Messrs. Cakebread, Robey and Co., 86 High Street, Stoke Newington, London, N., will have a large stand on the ground floor near the Blythe Road exit, on which will be shown a selection of high-class ranges, kitcheners with open and close fire, and with lifting fire arrangements and tiled borings; also a kitchener with an ingenious arrangement for converting a coal fire kitchener into a gas fire kitchener whenever desired. This device ought to attract great attention, as it means that in the summer months the coal fire can be dispensed with, and the gas fire turned on when required, while the extra expense and room necessary for having a separate gas-cooking stove are saved. They will also show the well-known "Belle" portable range. Among other goods in this department will be high-class tile stoves, showing the barless and semi-barless arrangements, also the famous Pinnox air pit fire with tiled surrounds, high-class interiors, slabbed panels, wood chimney-pieces, tiled mantel registers, etc., etc. Another department of the Stand will show sanitary goods—closets of various sorts, waste preventers, sinks, cast-iron enamelled baths, porcelain enamelled baths, and shower baths.

* * *

The Builders' Ironmongery Section includes highly-finished door furniture, some of the latest designs of finger-plates and handles, mortice and rim locks, sash fastenings

in great variety; also paints, oils, colours, varnishes, and paper-hangings. A novel feature of this Stand is the cast-iron verandah, with glass roof, suitable for villa residences built either terrace or detached. This verandah, painted white, is very effective, and gives a highly ornate finish to a house entrance. In the Surveyor's Section Messrs. Cakebread, Robey and Co. will have a stand, on which they will exhibit their numerous patent drain joints and drain machine appliances, including the famous patent "Firret" lock-fast joint, as applied to drain rods, of which they have sold over 100,000 feet; also several other ingenious patent locking joints. Other specialities on the stand will be the "Standard" smoke test machine, drain plugs, drain rockets, etc.

* * * *

Messrs. John Line & Sons, Ltd., Tottenham Court Road, London, W., will occupy a large space in a prominent position. The stand itself has been specially designed for the purpose, it being borne in mind that the decorations themselves are to form the chief point of interest in the exhibit. The erection has been constructed in such a way as to reserve two separate spaces for the two important departments of Messrs. Line's business, viz., the wall-paper department and the colour department. This has been done without interfering with the uniformity of the whole. In the wall-paper section the firm intend to show all their newest designs for 1907, among which there will be some great artistic novelties. A special feature will be made of the display of the "Georgian" decoration, a most striking example of modern wall decoration. This design has a strictly Georgian "motive," and all the panels of which it is composed are interchangeable, so that a great variety of effect may be obtained to suit each particular apartment. Some very beautiful hand-painted panels are introduced here and there, and also a fine variety of handwork friezes, of which Messrs. Line make a speciality. Many of these are printed by the old hand block process, so that they may be readily made to any colour to suit individual requirements. In addition, the books of the year will be shown, comprising every possible style of paper—from quite cheap to the most expensive. In even the cheapest papers, highly artistic effects have been obtained. In the colour department a portion of the stand will be devoted to a display of several specialities in the way of protective and decorative paints and decorations. Expert representatives will be in attendance to demonstrate in a practical manner the special qualities of the goods exhibited, which will include enamels and enamel paints, damp-resisting preparations, up-to-date sanitary and hygienic paints, and other interesting materials.

* * * *

Messrs. H. J. and C. Major, Ltd., of the Patent Tile Works, Bridgwater, Somerset, will again exhibit their well-known patent interlocking roofing tiles—Roman, Grecian, Angular, Welbeck, and plain patterns—which have a world-wide reputation as roof coverings. Their stand will also contain various descriptions of other roofing tiles, ridge, hip, and valley tiles, finials, copings, paving and oven tiles, land drain pipes, and building bricks. They will also show scouring bricks, commonly known as "bath" bricks, though, as a matter of fact, they are manufactured only at Bridgwater. There will probably be no stand at the Exhibition of greater interest to builders than that of Messrs. Major.

* * * *

Messrs. Chittenden and Co., 110 Fenchurch Street, London, E.C., will have on Stand 135, Row H, an exhibit that will be one of the novelties of the Exhibition, inasmuch as "Reform" and "Emulgit" corkstone will there make their appearance for the first time in Great Britain. These are insulating and building materials, extensively employed on the Continent for the past twenty years, both in the cooling and building industries. "Emulgit" corkstone is made in bricks and slabs, and is used for the linings of ceilings, thin walls, attics, roofs, etc., as a protection against heat and cold, for sound-proof partitions, ceilings, and floors, etc. "Reform" corkstone is impervious to heat, water, and frost, and is used for the insulation of cold stores, dairies, etc., and for the draining of damp walls, and similar purposes. These materials are said to possess the abnormally low heat transmission co-efficient of 0.05, or just double the effect of silicate of cotton. They bind readily to brickwork, and take plaster facing.

* * * *

The Well Fire Co., Ltd., 33 Dover Street, Piccadilly, London, W., will show a large assortment of Bowes' patent well fires, of which they are the sole makers. These will have tiled fronts, briquette fronts, copper fronts, and bright steel fronts. They will also exhibit a large selection of their patent pyramid interiors.

Messrs. Frederick Jones and Co., Slag Wool (silicate cotton) Manufacturers, of Middlesborough, London, and Manchester, will show at their stand samples of their well-known "Pioneer" brand of slag wool, which is so extensively employed for cold storage insulation purposes. Owing to its great air-holding properties, this material is unsurpassed as an insulator, and it is also absolutely fireproof and imperishable. Being a mineral fibre, it does not harbour vermin. Messrs. Jones and Co. will likewise show samples of their slag wool, made up into different forms for application to pipes and cylinders, walls, floors and ceilings, for heat, sound, fire and frost-proofing purposes, together with samples of fibrous plaster, ceiling slabs, and fireproof partition blocks.

* * * *

The Excelsior Patent Stone Co., Finedon Sidings, Northamptonshire, will occupy Stand No. 90, Row D, opposite Addison Road entrance. The floor of the stand will be paved with various descriptions of "Excelsior" artificial stone pavings, including 2-inch thick paving flags, as supplied to London and other Corporations for street side-walks, octagon paving slabs with polished slate quarries at corners, suitable for hall-porches, school-lobbies, etc.; grooved slab and channels for stables. At one end of the stand will be a staircase consisting of six moulded spandril-shaped steps and landing, with moulded and sunk parapet coping built on a brick pier. There will also be exhibited the following:—a mullioned casement window, complete, suitable for cottages, where strong, clean, durable and inexpensive materials are of the first importance. A cottage chimney-piece, set with circular bull-nosed fireguards, the "Whilread" window sill (of which this company has the sole manufacturing rights), with window-frame, patent casement and window-head complete. Other exhibits will consist of various samples of Excelsior stone, including cut and worked flags, L.C.C. pattern spandril steps, skeleton turret steps, etc.

* * * *

Messrs. John Knowles and Co., 38 King's Road, St. Pancras, London, N.W., will exhibit their well-known "Vitrifine" stoneware pipes, and a number of their other sanitary specialities. "Vitrifine" pipes are tested by internal hydraulic pressure up to 30 lbs. per square inch, which is equal to 70 ft. head of water. It is to be noted that these pipes are actually tested, and are, therefore, most suitable for all underhouse drainage. They have been largely used for main sewer or drainage works by the public authorities of most of the towns and cities of Great Britain and Ireland, including Dublin. Other specialities exhibited will include:—The patent B.P. (back pressure) safety stopper, the "Anti-Vap" street gully, the "Ventest" yard gully, Turner's patent locking grid gully, Palmer's patent automatic syphons for sewers, and a number of patent joints for drain pipes, including Parker's, Hassall's, the "Safe Guard," etc.

* * * *

Stand No. 91, Row D, near the Addison Road entrance, will be the Hall's distemper show at Olympia. It will be a novelty among exhibition stands, taking the form of a modern bungalow, with garden approach fitted with rustic armchairs, tables, and other garden furniture, the grass effect being obtained by green felt. The front walls of the cottage show stucco or rough-cast work. This gives a very realistic effect to the structure, and, being coated with No. 2 outside quality (weather-resisting) of Hall's distemper, demonstrates the material on this class of building. The trellis porch is decorated in green and white, the green being "Aperfectol" paint, and the white "Sisco" white Japan, two excellent specialities of the firm, the beautiful finish of which will be seen to great effect on this part of the work. The entrance door, fitted with leaded lights, will be decorated with a new enamel called "Orientalac," which is the latest introduction of **Messrs. Sisson's and Co., Ltd.** It is made in both dull and bright finishes (also in colours), and examples of both kinds will be shown in the decoration. The first room in the Stand will be treated in No. 65 (crimson) Hall's distemper, with artistic stencil designs worked out in several colour effects. Passing through a fretted arch into the next room, further examples of Hall's distemper work will be seen, the wall facing being decorated in No. 66 (permanent green), the wall on the left in No. 62 (dark heliotrope), a favourite colour with the public. The manufacturers will varnish the lower part to show, as a practical example, how with Hall's distemper quick varnishing work can be done at half the cost of painting, with really fine effect. This property of Hall's distemper is one that cannot be too widely known to the trade, as also its great value as a priming coat for new wood. The right-hand wall has a central exit door, with panelled walls to right and left. Both panels are in

No. 62 (dark heliotrope), the filling being No. 61 (light heliotrope). The ceilings in both rooms are in white, with small oak beams, stained with Sisson's antique oak stain. The outside walls of the Stand are utilised for advertising the various enamels made by Messrs. Sissons Bros. and Co., Ltd., Hall's distemper, colours, etc. The roof of the cottage, half carried up, will be of wood-work coated in a shade of Hall's distemper, specially made to match red tiles in colour. This distemper, by the way, is made in seventy colours, but any shade can be specially made. Among the incidentals of the exhibit are show-cases filled with dry colours, samples of varnishes, etc. Altogether this Stand, one of the largest in the Exhibition, is most interesting. One of its main features will be a set of screens, which are decorated on both sides with wonderful skill to show various examples of the versatile work that can be done with Hall's distemper. This screen is the same exhibit which took the gold medal at the Liege Exhibition, 1905.

The new spire of the Vincentians' Church at Phibsboro' was completed, the foreman of the works, Mr. James Goff, placing the twelve-foot cross in position. The total height of the spire and cross is just half a foot short of two hundred feet. The point of the lightning conductor will be 202 feet from the pavement. Allowing for the elevation of the site, the spire is the highest in the city, and is now a landmark on all the roads from the North and North-West and from the sea. The top should be visible from Lambay on a clear day.

CONTRACTS.

TO BUILDERS.

Tenders are invited for Alterations, Additions, and Improvements to Ballyhubbo House, Charleville, for Nicholas FitzGerald, Esq., Fortlands, Charleville.

Drawings and Specifications can be seen on application to Mr. FitzGerald, or at the Offices of the undersigned, any day (Sunday excepted) between the hours of 10 a.m. and 4 p.m.; Saturdays, 10 a.m. to 1 p.m.

Sealed Tenders, endorsed: "Ballyhubbo House," must be delivered to the Architect on or before Monday, the 15th April.

The lowest or any Tender not necessarily accepted.

BRIAN E. F. SHEEHY.
Architect.

57 George Street, Limerick,
28th March, 1907.

ENGINEERING NEWS.

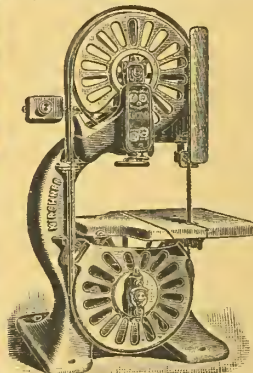
Cork.—The Cork Harbour Commissioners are prepared to receive tenders for their annual supplies of timber, iron, steel, paints and oils, metal castings, etc. Tenders to be deposited on 9th April.

Howth.—The Hibernian Electrical Company, of 12 College Green, have nearly completed bell installations in a large number of houses that have been built for Mr. Haughton Barkin, at Sutton, Co. Dublin.

Portumna.—The Portumna District Council received two applications for the position of engineer, viz., Mr. Roseingrave and Mr. Hardiman. Mr. Roseingrave was unanimously appointed, the Council paying a high tribute to the manner in which he had done their work in the past.

Swinford.—At the meeting of the Swinford District Council there were two applications for the office of engineer under the Labourers Cottages Act—Mr. Cairns, A.C.S., and Mr. M. J. O'Boyle, Ballina. Mr. O'Boyle was appointed.

Tralee.—There were three tenders for the position of engineer under the new Labourers' scheme. One application was, however, received 25 minutes late. The meeting decided not to consider that tender, but to open the other two. One was from Mr. A. C. Adams for marking plots on ordnance 10s. per plot and 2½ per cent. on other work. Mr. E. Keane tendered at 7s. 6d. and 15-16 per cent. on the work. Mr. Keane was unanimously elected.



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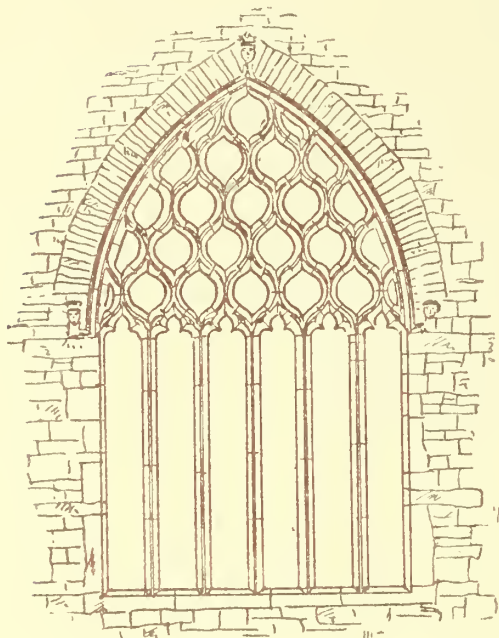
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HOLY CROSS



Exterior Elevation and Plan of East Window.

Window in South Chapel.
South Transept.
Plan.

Window in North Transept.
South Transept.
Plan.



Exterior Elevation and

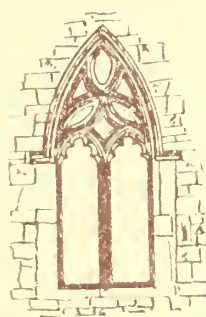
Exterior Elevation, Plan and
from Cloister

SS ABBEY.



Plan of West Window.

Section of Norman Doorway
to South Aisle.



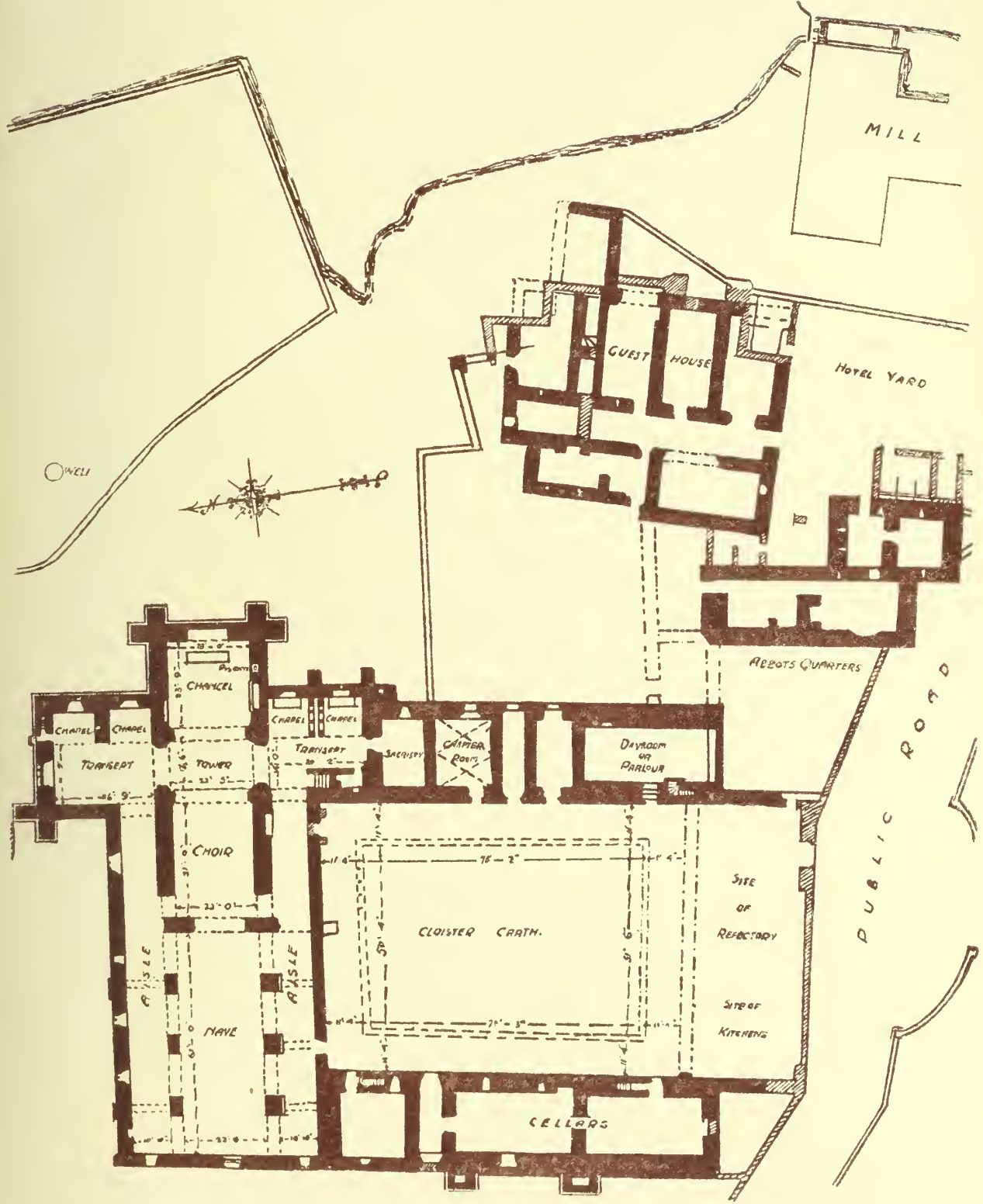
Window in North Chapel,
North Transept.
Plan.

Window in North End of
North Transept.
Plan.

Window in South Chapel, North Transept.
Plan.

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HOLY CROSS ABBEY.



Ground Plan.

THE IRISH BUILDER AND ENGINEER.

A JOURNAL DEVOTED TO

ARCHITECTURE, ARCHÆOLOGY, ENGINEERING, SANITATION,
ARTS AND HANDICRAFTS.

Every Second Saturday.

[Estab. Jan. 1859.]

No. 8—Vol. XLIX.

HEAD OFFICE

APRIL 20, 1907.

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DUBLIN

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TOPICAL TOUCHES.

The Postmaster-General has appointed Major W. A. J. O'Meara, C.M.G., R.E., to be Engineer-in-Chief to the Post Office, in succession to Mr. J. Gavey, who retires on the 15th inst.

The design of Mr. Alfred Cowlshaw, architect, Galway, has been selected in the recent competition for a fever hospital for Galway. Mr. G. C. Ashlin, R.H.A., was the assessor, and the estimated outlay is about £13,000.

The thirty-eighth annual excursion of the London Architectural Association will take place on August 12th-17th to East Anglia. Particulars will appear in the *Architectural Association Journal*. Members wishing to join should communicate, without delay, with Mr. W. Talbot Brown, "Burysteed," Wellingborough, or Mr. A. W. Hennings, 34 Victoria Buildings, Manchester, Hon. Secs. for the excursion.

Messrs. Crawford and Frame, whose contract for the main drainage of Clontarf was accepted, and subsequently rescinded, by the Dublin Corporation, have instituted proceedings against the municipality to compel performance of the contract. We understand that a draft form of contract was sent Messrs. Crawford and Frame for approval by the Corporation through their Law Agent, and was duly approved and signed by them. On the other hand, it is difficult to bind a corporate body by any agreement not under seal, and no corporate seal was attached to any document that passed, so that a very pretty legal point is raised. Both parties are very confident.

There seems to be, judging from present appearances, every prospect of the International Exhibition being complete and ready by the date fixed for the opening. The grounds are being very attractively laid out. An historical and an Art section will form prominent and attractive features. Sir Thomas Drew, who up to the present has acted as chairman of the Art section, has resigned, and been succeeded by Sir Walter Armstrong. The committee in charge have been very fortunate in gathering together most remarkable and extensive loan collections—in fact, so extensive that they will surprise most people, who are unaware of the treasures of art and historic interest that Ireland still contains.

St. Paul's Cathedral, London, is said to be endangered by the construction of a new sewer within 45 feet of the tower. A committee of architects was appointed, and consisted of Mr. Thomas E. Callcutt, Sir Aston Webb, Mr. John Belcher, and Mr. Mervyn E. Macartney, architect to the Cathedral fabric. These experts were called in by the trustees when the London County Council determined, under Parliamentary powers, to construct a main drainage sewer within 45 ft. of the south-west tower of the Cathedral, and only 32 ft. from the surface. These gentlemen advise that the making of the sewer should be opposed, and another route for it insisted upon. Elsewhere we give some extracts from their report.

The event of the month has been the Building Trades' Exhibition in London, a special report of which we publish elsewhere. It was opened by the Lord Mayor of London, Alderman Teloar, and has proved a great success.

The dispute between the Institute of Architects and the Master Builders still continues. The Trades Council has called upon the Dublin Corporation to intervene, as some of the buildings affected are on the Corporation estate.

The tender of Mr. Frazer has been accepted by the Kingstown Urban Council for the erection of public baths. A very heated discussion took place at the last meeting, and it was only after warm controversy that the contract was signed. Several members condemned the present scheme as being wanting in many essential respects, and advocated reverting to the scheme designed by Mr. Frank Baggally, of London; however, they were unable to carry their point on a division.

The Local Government Board for Ireland notify that at an examination of candidates for qualification as Assistant Surveyors in Ireland, held on the 20th and 21st February, 1907, under Article 4 of the General Order of the 16th November, 1906, the undermentioned candidates have qualified in the prescribed subjects:—Thomas F. Ryan, Michael Cunningham, Martin J. Heavy, James K. Stephenson, Martin J. Heavy, Martin J. Ryan, Patrick J. Daly.

In our next issue we hope to publish a further design by Mr. T. M. Deane for a two-storey labourer's cottage. His design is of a more economical character than any one-storey building giving the same accommodation, but, for some reason or another, two-storey cottages are very unpopular with the labouring classes in rural districts in Ireland. Considerable objection is expressed to stairs. Certainly, there is an element of danger to very young children, who, by force of circumstances in such households, have of necessity to be left much to themselves.

In a recent issue of the *Daily Independent* there was a very trenchant article by Mr. F. J. Bigger, of Belfast, who has so strongly criticised the cottages awarded prizes in the recent competition, and he gives some plans of his own, which, although open to some points of criticism, are, on the whole, sensible and suited to this country; but no sanitary authority exercising powers under the Labourers' Acts should, under any circumstance, build either one or two-roomed cottages. The essence of the act is to provide a PERMANENT home for a rural labourer, in which he may bring up his family in decency and comfort, and anything less than a three, or probably four, roomed house is not only insufficient, but is a positive danger by tending to encourage and perpetuate a system of overcrowding, which in the past was responsible for so much typhus and other filth diseases. Of course, the circumstances in urban or suburban districts are quite different, and contemplates more or less temporary occupancy, on a lodger footing, of dwellings for the working classes.

The International Building Trades Exhibition.

OLYMPIA, 1907.

The Building Trades Exhibition, which, after being open for a fortnight, has just closed, has undoubtedly been one of the most successful to all concerned in it that has yet been held. It has had the advantage of being held this year in the large Hall of Olympia, a building far more convenient of access and more attractive than the Agricultural Hall, where the former exhibitions have been held every alternate year, and in making this change the organisers have wisely followed the example set to them by the directors of the Royal Military Tournament, who found that they gained considerably by this move. It had also the further advantage of being opened under the auspices of the Lord Mayor of London, on an occasion when there were also present the Lord Mayor of Dublin, Sir Aston Webb, R.A., and a very representative gathering of gentlemen interested in every branch and detail of building. Mr. H. G. Montgomery, M.P., the organiser of the enterprise, was thus rewarded for his pains, not only by the numbers of the exhibits, which completely filled the hall, gallery and annexe, but also by the large attendance on the opening day and throughout the fortnight.

The object of such an Exhibition may appear too obvious at first to be mentioned, but, as Sir Aston Webb pointed out, it was one which should assist in the necessary solution of many problems. The exhibits showed, for instance, what has been done, and suggested in solving the problem of smoke, either by prevention or resistance, and in what materials the qualities of beauty, durability, and utility can best be obtained—and competition in such things leads, when it refers to quality and not to price only, to the production of better articles. It must not, however, be supposed that the Exhibition was so technical as to be of interest only to architects and builders, for many of the exhibits were of great artistic merit, and as some of them are, we understand, to be transferred to the Dublin Exhibition, so those who had not the opportunity of going to London will be able to judge this for themselves. Practically everything connected with building, except the actual process, such as brick-making by machinery, was to be seen. One could, indeed, find all the component parts of a house, from drainpipe to chimney-pot, and from decorative friezes to burglar-proof safes, ready to be put together like the brick in a child's box of playthings. The tendency of the age was shown in many ways, perhaps most of all by the display of manufactured stone of all kinds, from waste slag, for example, by the process patented by Mr. T. M. Thom, to which fuller reference is made below. Considered from this standpoint, these exhibits illustrated, in a very remarkable way, a tendency which is to be observed in every form of modern activity. With them may also be mentioned the innumerable devices which were shown for making the house more hygienic and more comfortable, including in the latter class the various contrivances for grates, partitions which are sound-proof, and materials to resist damp. There were also the various kinds of decorations, all worthy of notice on account of the prominent position which they occupy in the finished building, and interesting historically as showing the advance made in the artistic treatment of decorations since the first of these exhibitions was held. Together with the manufacturers, architects, who may be considered the chief customers of a building trade exhibition, were also represented. In the

annexe of the main building there was a good representative collection of drawings lent by prominent architects, including Sir A. Blomfield and Sons, Mr. R. Blomfield, A.R.A.; Mr. G. F. Bodley, R.A.; Mr. T. J. Jackson, R.A.; Mr. E. G. Dawber, and Mr. E. J. May.

It would be altogether beyond the scope of the present article to even enumerate the various exhibits, but we give below short notices of a few which especially attracted our attention.

THE EXHIBITS.

The Lithographic Stone and Marble Co., Ltd., 11 and 12 Finsbury Square, London, E.C.—In our issue of November 3rd, of last year, under the heading of "Marble from Slag," we brought to the notice of our readers the patented process of the above company, whereby waste *debris* of any good carbonate or magnesium limestone may be converted into blocks of stone and marble.

The Company's exhibit, one of the finest in the Exhibition, represented a raised platform or podium of building stones, with an architectural composition of seats and central fountain. The entire structure was in the style of an early period of Italian Renaissance, and formed a most striking feature. The material is in no way an imitation. The Company's manufacture is identical with the natural material, the natural geologic changes extending over long periods of years being enormously shortened in time and placed under control.

We are able to give a view of a London building in which the Company's reproduction of Portland Stone was used throughout.

The Company are erecting a modern factory at Ponder's End, Middlesex, when it will be able to turn out about 300 tons weekly.

* * * *

The Improved Construction Company, Ltd., 47 Victoria Street, Westminster, S.W.—At this Stand were shown the Company's moulded concrete manufactures, consisting of building blocks, pipes, railway sleepers, paving slabs, coloured tiles, roofing tiles. These manufactures are moulded by a patented process consisting of a vibrating table which oscillates in four directions, resulting in the material moving only vertically, wedging the aggregate together, and forming a very hard and compact concrete.

* * * *

The Penyghent Stone Company, Hipperholme, Halifax, Settle.—The Economic stone, the speciality of this Company, was well shown at their Stand. This is a machine-made artificial stone of most pleasing colour, and particularly suited as a paving. The Economic stone is a combination of a peculiarly hard Yorkshire blue stone (free from lime) and the best English Portland cement, with other binding ingredients. We should say that it will be much used.

* * * *

Davis, Bennett and Co., Westminster Sanitary Works, Horseferry Road, S.W.—This firm had a fine exhibit of their various sanitary appliances. Handsome and luxurious model bathrooms had been fitted up on their stand, with special pattern porcelain baths, lavatories in statuary marble, onyx, and purpose-made toilet fittings. With these elaborate fittings were also exhibited cheaper patterns suitable for industrial dwellings. Mr. Davis also pointed out to us appliances for use in hospitals and their operating theatres, all examples of the sanitary engineer's ingenuity.



A building erected with the Lithographic Stone Co.'s Portland Stone.

At the London Showrooms we were told that there was, perhaps, the largest selection in London.

* * * *

Messrs. Hughes and Stirling, 7 Arundel Street, Strand, W.C.—An entirely new model of the latest type of "Stirling" refuse destructor was shown, complete with boiler, flues, regenerator, dust chamber and chimney shaft, and the system of dealing with the refuse by a travelling crane and buckets was also illustrated. The capacity of plant steam was from 30 to 40 tons of house refuse per day of 24 hours, capable of raising 150 to 180 h.p. at full load for the whole 24 hours. A number of photographs of plants erected at Isleworth and elsewhere were also on view, as also samples of clinker and bricks and slabs made therefrom.

* * * *

The Limner Asphalte Paving Co., Ltd., 2 Moorgate St., London, E.C.—This firm, which is the owner of mines at Bassin de Seyssel, Haute Savoie, and also in Hanover and Ragusa (Sicily), exhibited models representing mineral rock mastic roofing, stable floors, and damp-proof courses. We especially noticed the Lithofalt bituminous concrete foundations for preventing vibration to all high-speed machinery. It is interesting to note that the factory for the West of England and Ireland is situate at Magheramorne, Co. Antrim. Amongst the works recently executed may be mentioned North of Ireland Paper Mills, Ballyclare; Belfast—Cork Street footway, Queen's Bridge footway, University Square footway, Messrs. Millar's Jam Factory. Bishop's patent safety tread was also shown. A staircase at Westminster Bridge Station has recently been fitted with this material.

* * * *

Walter Carson and Sons, Grove Works, Lombard Road, London, S.W., and Bachelor's Walk, Dublin.—An excellent display of painting materials was exhibited by this firm. Amongst the specialties we noticed—Carson's pure liquid paint; "Muraline," a washable water paint; "Plastine," an imperishable putty; also an aluminium paint for hot water and steam pipes, and the decoration of ironwork of every description.

* * * *

Messrs. Holzapfel's Compositions Co., Ltd.—The special exhibit by this company was their "Silverette," an aluminium paint, manufactured by a new process, and recommended for structural work, bridges, piers, railings, etc. "Silverette" is claimed to withstand red heat; "Pintoff," a special paint and varnish remover; and Holzapfel's white enamel were other specialties shown on the Stand.

* * * *

Patent Indented Steel Bar Co., Ltd., 6, 7, 8, 9 Queen Anne's Chambers, Westminster.—This Company has not yet had time to establish themselves in this country, but we shall expect to see many contracts carried out with their method in the near future, as has already been done in America. The Company claim that its Indented Steel Bar removes the uncertainties attendant upon the use of plain bar reinforcement, and the agencies that tend to destroy the adhesion between metal and concrete. Views of structures erected with these bars were shown, as well as specimens of actual bars, and concrete work showing embedment of bars.

* * * *

Carter and Co., Eucastic Tile Works, Poole. Several fine examples of tile work were shown by this firm, which has recently completed an order for 6,000 yards at the Home Office, Whitehall. Samples of their leadless glaze were exhibited, and we also noticed Ceranino Mosaic for floors, and mural decorations.

* * * *

The Hygienic Glass Tile Co., Ltd., 10 Basinghall Street, E.C.—Something quite new in glass tiles was exhibited by this Company in the hygienic tile. The backing is a special feature, and, being part of the tile, is not affected by heat, and also forms a good key. The Dutch friezes shown were also worthy of attention.

* * * *

F. McNeill and Co., Lamb's Buildings, Bunhill Row, E.C.—Special felts in various forms were exhibited, also bitumen and patent metal asphalte damp-proof courses. Other exhibits included McNeill's pliable mastic damp-proof course, slag wool slabs for fire-proofing, insulating papers, roof-linings, etc.

* * * *

Safety Tread Syndicate, Ltd., 15 Barbican, London, E.C.—Samples of the diadem stair treads and non-slipping covers and coal plates.

* * * *

The Cloisonne Glass Company, 40 Peckers Street, London, W.—Many beautiful examples of Cloisonne glass, as applied to windows, door panels, ceiling lights, etc., were exhibited at an attractive Stand. Cloisonne glass is so

well known that a description of the materials used is unnecessary, but it is interesting to note that the industry was founded some fifteen hundred years ago by the Japanese.

* * * *

C. Chancellor and Company, 13 Clerkenwell Road, E.C.—The chief articles exhibited on this Stand were the firm's well-known "Velure Japan Paint," and "Stripso" paint remover.

Velure is claimed to be more elastic than any other paint, thus withstanding exposure to hot sun and weather. It requires no varnish, and can be easily cleaned. A number of wood panels demonstrated the beautiful surface and colours obtained. "Fumwood," a preparation for fuming oak and giving to other woods an antique appearance, and a swimming bath paint were also exhibited.

* * * *

The Kleine Patent Fire-Resisting Flooring Syndicate, Ltd., 9 St. Helen's Place, E.C.—The Kleine system of fire-resisting floor construction was demonstrated by a Stand constructed in the form of a single floor, with a mansard roof over.

Terra-cotta bricks, measuring 10 ins. by 4½ by 6 ins., are used in conjunction with R.S.J.'s and stanchions.

For floors these bricks, covered with ballast concrete and a hoop-iron tension band running through each joint are used, the total thickness being 7 ins.

* * * *

Constable, Hart and Company, Ltd., Clarence House, Arthur Street W., London, E.C.—A limestone tar-paving was exhibited. It is of a light grey colour, and bright and clean in appearance, with a smooth, but not slippery surface, and was first introduced to London and Southern Counties by this firm.

Slag tar macadam.

This material, the outcome of many experiments, is a stone combining all the necessary properties required for making a dustless and waterproof road suitable for the heaviest traffic. It has already been used in many districts where, by its use, the cost of scavenging has been greatly reduced.

* * * *

Duke and Ockenden, 126 Southwark Street, London, S.E.—Many of the firm's specialties, by the name of "Daudo," were exhibited, notably—the "Daudo" diaphragm pumps, for sewage, trench work, etc.; "Daudo" power "odourless" diaphragm; "Daudo" windmill on stump tower; "Daudo" pumps for windmills.

Many valves and contrivances for hydraulic work were also shown.

* * * *

B. J. Hall and Company, Ltd., 39 Victoria Street, London, S.W.—This Stand proved a great attraction to architects and draughtsmen. On it were exhibited photo copiers in actual use. Hall's patent electric copier, double elephant pillar machine, with a plate-glass cylinder to admit two copies, and an attachment for a number of small tracings, is a machine with all the latest improvements.

Examples of the "Perfect" and "Plu-perfect" drawing tables were also shown, as well as a good selection of drawing instruments, levels, chains; in fact, all materials for the use of surveyors and technical students.

* * * *

Phoenix Engineering Company, Ltd., Chard.—A very comprehensive exhibit was shown by this Company. Tar, pitch, and bitumen boilers of horizontal and vertical patterns; an asphalt cauldron for melting rock asphalt; a portable tar carrier, with dipping pan and pails.

"The Floodgate" hand-lift pump, for contractors and trench work, sewage (to raise from 1,200 to 6,000 gallons per hour), and many other of the firm's well-known specialties.

* * * *

Notley and Taylor, Finsbury Pavement House, London, E.C.—It would seem that the "Notlor" imperishable dwarf self-flaunching chimney pot has overcome the incalculable expense in the periodic flaunching and weathering of chimney pots. Chimney pots once fixed by this system are claimed to be permanent, and, further, they form the basis of a system of experimenting, at a trifling cost of curing smoking chimneys by means of self-fixing, detachable, and interchangeable wind-guards. The pots are not unsightly, and should find many users in the future.

* * * *

The Horsfall Destructor Company, Ltd., Lord Street Works, Whitehall Road, Leeds.—A model of the firm's new "tub feed" destructor was shown. In this system the collecting carts discharge the refuse into a tub on the floor level. The tub is then raised by an overhead travelling

crane, and placed on a movable hopper over the cell, and with its own weight causes the hopper to descend automatically, lifting the charging door and opening the doors at the bottom of the tub when the load is shot into the furnace, and the refuse spread naturally over the grate. The "Horsfall" latest clinkering doors are fitted, and the management of the fires is accomplished without opening the main doors.

Models of "Horsfall" latest "sectional" type of forced draught smoke-consuming furnace; "Horsfall" patent centrifugal dust catcher; and the "Horsfall" self-contained crushing and screening machine, on the Cox and McTaggart patent, were also shown. Amongst many others, plants at St. Petersburg, Warsaw, and Greenock have recently been erected.

* * * *

Ham, Baker and Company, Ltd., 13 Grosvenor Road, Westminster.—A working model of the firm's patent automatic travelling distributor, for rectangular filter beds, on a bed 5 ft. 0 ins. long by 2 ft. 6 ins. wide, was exhibited. Amongst many others of the firm's specialties we noticed—Patent automatic sprinklers, for the distribution of sewage over filter beds; as used at the Birmingham Sewage Works; a contractor's pump, with brass lining and piston, 8½ inch dia. for 3 inch suction hose. A diaphragm contractor's pump for semi-liquid, clean or dirty water, 12½ inch dia. for 3 inch suction hose; a diaphragm lift and force pump. Sewer ventilating shafts, with patent disinfecting and rust-collecting chambers; drain stoppers; a patent new flooding trap valve for the prevention of flooding to basements. Also models of a sedimentative tank, fitted with patent revolving apparatus for removing sludge, and a self-contained bacterial sewage tank for mansions and private houses.

* * * *

John Line and Sons, Ltd., 213-215 Tottenham Court Road, London, W.—This firm fully maintained its reputation in its exhibits at a specially constructed Stand of simple design. A special feature was made of the Georgian decoration. This design has a strictly Georgian "motive," and is so printed that it can be used in various rooms, according to their respective limitation. Some very beautiful hand-painted panels were introduced, as also some hand-worked friezes. Many of the latter are printed on the old Japanese method of a block printed outline and colour stencilled on by hand. In the firm's colour department (Alfred Place, London, W.C.), various proprietary paints and enamels were shown.

* * * *

W. M. Glendenning, Rathgar Road, Brixton, London, S.W.—A useful invention is the instantaneous water heater exhibited by Mr. W. M. Glendenning. The water is passed through a number of copper tubes, placed in the bottom of the heater. The burner has six small gas jets, from which the gas, mixed with air, passes into six large tubes under the coil. The water supply of the tank over is regulated by the means of an ordinary ball valve. Samples of sanitary appliances and ornamental lead roof work are also shown.

* * * *

Jabez Thompson and Sons, Ltd., Northwich, Cheshire.—This exhibit consisted of an elevation treated with three terra-cottas, red, grey, and salmon buff; an elevation treated with a special grey terra-cotta; a partition built 2 ins. thick of the firm's celebrated patent "Terrawode" brickwork, which beat the record in a recent test by the British Fire Prevention Committee, and a selection of samples of glazed, enamelled, marbled, and vitreous terra-cotta. A fire and sound proof "Patent thin, white Partition," especially useful in dividing rooms quickly, was also shown.

* * * *

Stanley, Jones and Co., Albion Works, Caledonian Road, King's Cross, London, N.—This firm had a good display of metal shop fronts, show-cases, signs, fascias, window letters, etc. Many of the latter are made by the "Stamp" process (registered), and consist of stamped copper letters, gilt with 23 carat best English gold-leaf, hermetically sealed to the back of plate glass. There were also shown trade advertising tablets and decorated mirrors, all worthy of attention.

* * * *

Doulton and Co., Ltd., London, S.—The glazed terra-cotta, the firm's well-known Carrara ware, was exhibited in the form of two blocked columns on pedestals in green and cream, and formed a most striking feature, and quite one of the best examples of *faience* work in the Exhibition. A large section of the exhibit comprised an installation of fireplaces and mantelpieces in glazed ware. The Sanitary Section showed two bath-rooms, the first containing fittings at a moderate price, and the second fittings of a most luxurious nature; there was also a general exhibit of sani-

tary fittings, water closets, urinals, glazed sinks, gullies, drain-pipes, etc.

* * * *

The Van Kannen Revolving Door Co., Ltd., 27 Great James' Street, Bedford Row, London, W.C.—This firm showed a fully-fitted exhibit of their revolving door. The door consists of four arms or wings, which revolve on a central pivot, allowing the free passages of persons desiring to enter or exit. Latterly a mechanical device has been invented whereby the four central arms can be folded together. Still later a contrivance was added, so that these arms can be slid aside, and a further development allows the doors to collapse automatically in case of panic. We read in one of our contemporaries that the Dean and Chapter of St. Paul's Cathedral contemplated fixing these doors to the entrances of the Cathedral, but we can find no confirmation of this report.

* * * *

Sir Joseph Causton and Sons, Ltd., Birkbeck Street Works, London, E.—There was a large display at this Stand of the firm's specialties, including mirrors, silver-plated glass, cut to many shapes, and decorated with brilliant cut and acid effects. Patent "Marblo," an imitation of real marble, in vitrified colours, on opal, was also shown made up in tiles and panels. There was also some new effects in leaded panels for hall-doors, screens, etc.

* * * *

The Ajax Sanitary Co., 49 Stamford Hill, London, N.—Quite a new form of waste, invented by Dr. C. A. James, in a variety of patterns, was shown on this Stand. It consists of a shutter placed vertically at the back of the basin, the waste outlet being at the back of the shutter. Several ways of fitting the shutter have been adopted. In one case it is hinged at the top and swung forward into a rebated metal frame; in another it slides in a grooved frame; yet another example—the shutter is made of vulcanite, with flexible edges, and detached, the pressure of water alone keeping it in position; this form is claimed to be especially serviceable where acids or chemicals are used.

* * * *

James D. Prior, "Empire" Works, Holliday Street, Birmingham.—Much attention was given to the method of heating bedrooms and hall with the waste heat from the sitting-room fire, by means of the "Venetian" grate and heat distributor. The five-tube heat distributor (in operation at the back of the fire) extracts sufficient waste heat to warm 80 feet super. of radiators—the four-tube radiator to heat 60 feet super. The "Venetian" fire grate, with patent regulating fire bars and draught-controlling doors, which is claimed to burn 10 hours without attention, is shown in conjunction.

* * * *

Mr. James Gibbons, St. John's Works, Wolverhampton.—There was a most interesting exhibit on this Stand of locks and brass foundry, opening gear, casements, and safes. Among the great number of patents shown was the "E.C." reversible window, panic bolts for theatre doors, and a new lever-action flush bolt, which require a very little letting in. We also noted a number of floor springs, and some very attractive electric light fittings in bronze. One of the latest buildings fitted throughout with locks, furniture, and casements, is Belfast City Hall.

* * * *

Duggan, Neel and McCo'm, Ltd., Langbourne Wharf, Millwall, E.—Three of this firm's specialties are illustrated by a fancy Stand decorated with "Dodo" Japan, "Dodo" enamel, and "Dodo" flatting. "Dodo" enamel is not a paint, but an air-drying enamel, which can be applied as easily as paint, giving a surface equal to the highest class coach work. All the firm's productions are of British manufacture, and it is interesting to note that all the partners are closely connected with Ireland.

* * * *

Messrs. Pemberton, Arber and Company, Engineers, of Gray's Inn Passage, Holborn, London, exhibited a pair of Casey's "Sesame" doors. This mechanism for doors is, perhaps, one of the latest things in the Exhibition. As the name implies, the opening is automatic. The contrivance is of a very simple character, consisting of a wood platform which carries the door mats. The weight of a person on these mats depresses levers, which, through connecting rods, transmit motion to the doors. The patent has been very favourably received, and we shall expect to see them much used in the future.

* * * *

The Bostwick Gate Company, 16 Gray's Inn Road, London, W.C.—The collapsible gates, in steel and dcta metal, now so well known, were well exhibited in a Stand of quite exceptional interest. Many fine examples of wrought iron work for lift enclosures, and furniture for doors, were also displayed.

Messrs. Wilson Brothers, of the Victoria Machine Works, Holbeck, Leeds, exhibited a new patent "Rex" chain morticer, driven by means of a "V" belt. The patented motion automatically takes up all slack, and gives steady, silent running.

* * * *

A stand noticeable for its artistic treatment, erected by **Messrs. Campbell and Christmas**, of St. Oswald's Studios, West Brompton, London, S.W., exhibited many fine specimens of their work in stained glass, and designs for mural paintings.

* * * *

John Yates and Co., Ltd., Birmingham.—This firm had a representative collection of tools for contractors and public authority use, including their well-known "Bull Brand" shovels, picks, spades, grafting tools, road wedges, crowbars, hammers, etc. They also exhibited their new road danger lamps, which they have recently put on the market, and illustrations of their improved rotary screen. The exhibits clearly showed the excellence of Messrs. Yates' manufactures, and the wide range of tools they can supply.

* * * *

Messrs. Wilmer and Sons, 11 to 14 Bury Street, St. Mary Axe, London, E.C., made a special feature of the patent bond grates, and also of their patent "Sine Qua Non" range, both of which were shown in action. Among other exhibits were several novelties in ranges and heating stoves suitable for flats, workmen's dwellings; a new independent range, combining a coal oven and a gas grill on the hot plate; a large show of porcelain baths and lavatories, and a selection of chimney pieces in wood, marble, and iron; stoves, mantel registers, tiles, etc., etc.

* * * *

Mr. H. C. Slingsby, Old Street House, London, E.C., exhibited the following:—Slingsby's patent trucks and trucks of all kinds—a selection of about 60 from 1,000 varieties made, catalogued, and kept permanently on show at Old Street House, 142-6 Old Street, London, E.C. This business comprises 12 complete lines, viz.:—(1) Slingsby's patent trucks (these are known and used in all civilised countries); (2) sack trucks (Slingsby's patent collar); (3) handcarts; (4) tipping wagons and portable railway; (5) carrier tricycles; (6) cycle wheeled handcarts; (7) wheelbarrows of all kinds; (8) milk trucks; (9) platform trucks; (10) imported trucks; (11) toy trucks; (12) roller bearing castors. In addition to the above, a full line of all kinds of wheels and tyres, including—white felt tyres (the latest and best for most purposes), rubber tyres, constant end grain wood wheels, and everything appertaining to trucks and the like. This firm has a branch at 42 Lower Ormond Quay, Dublin.

* * * *

Messrs. A. Gray and Co. Engineers and Constructors of Fire-resisting Floors and Partitions, of 59 New Bond St., London, W., with whom is associated Mr. Albert Gray, Sole London agent of the Frazzi Floors and Partitions, besides showing sections and models of these now well-known floors which are now being fixed at the new Piccadilly Hotel, with frontages in Piccadilly and Regent Street, probably the largest hotel in course of construction, had also shown the following:—Desideratum non-conductive fire-resisting roofing. This is formed of hollow fire-clay slabs, perfectly straight, and so light that they can be carried on 1½-inch by 1½-inch by 1½-inch tees at 2-feet 4-inch centres, and at 7 feet 0 inches between purlins; the whole construction weighing only 7½ lbs. to the foot super. They are stated to be as cheap as wood and felt construction, and have the advantage of being permanent and requiring no repairs. These have lately been fixed in thousands of yards at Aster's Engineering Works, Wembley, the Crocker Brotherhood Motor Works, Tinsley, and at other places, and for Mansard roofs in London. The undoubted consideration due to roof fire resistance, as evidenced by the interest taken in this matter by engineers and surveyors, made this probably one of the most interesting features of the Exhibition.

Armoured Wire Terra-Cotta Lathing.—This is used for partitions and for temporary and other buildings, and is suitable for coves and circular work of all kinds, and for the protection of steel work. The fire trials of the material were most satisfactory.

New Form of Construction in Steps.—These are formed of hollow fire-clay slabs, which are considerably lighter than Granolithic steps, and are rendered non-slipping by a finish of patent covering, the whole being produced at a very low figure.

* * * *

The Fillian Company, Ltd., The Ham, Brentford, Middlesex.—This firm exhibited their Blanc Fillian distemper, in powder, which is soluble in water, Blanc fine distemper, in powder, soluble in hot water, for ceilings and inside use; also painters' driers in powder and liquid.

The Brilliant Sign Co., of 38 Gray's Inn Road, London, W.C., attracted a good deal of attention. The firm claim to be the inventors and sole manufacturers of the original and only perfect "brilliant letter" now so much used for all kinds of glass signs and window decoration. The excellent quality of the work is ensured by the use of steel dies, stout copper, and English gold-leaf of 23-carat quality. In regard to cost, the firm claim to be at least 30 per cent. below their competitors. A speciality is made of art metal work, and repoussé and hammered copper signs. Gilt wood letters are also made a special feature of, as well as window letters in white enamelled copper, prismatic cut plate-glass, and polished metal, including brass, copper, gun-metal, bronze, and aluminium in any design. Other varieties shown include white opal glass letters, metal stall-plates, etc., etc.

* * * *

Messrs. S. and C. Collier, Ltd., Grovelands, Reading, exhibited as their speciality their well-known C.R.R. (Collier's Reading Red) roofing tiles. Their plain orange red tile, so typical of the Berkshire towns and villages, is too well known to require more than mention, but this year they have turned their attention to a wider colour and surface range for the choice of their clients. The plain tile was shown in 40 varieties, ranging from white through greens, reds and browns to blacks, and from a pressed, smooth, or glazed surface to one as coarse as a honey-comb. Particularly worthy of notice was their green tile and the new art surface one. Besides the plain tile they showed five others of various patterns suitable for all classes of work. Next in importance on this Stand were the varieties of facing bricks, the famous C.R.R. silver grey, the best dark-red hand-mades, and the sand-lime brick in every shade and colour possible. If our readers wish to know the secret of the beautiful appearance of the new offices of the Ecclesiastical Commissioners, at Westminster, and the new premises of Messrs. Waring and Gillow, of London, we should advise them to study the facing bricks of this Stand. Messrs. Collier also showed a very capital display of their C.R.R. terra-cotta in red, buff, and dark stone colour. Their chimney pots are well to the front with their close companions, the ridge tiles and finials, all of excellent quality and design.

* * * *

Space does not permit, in the present issue, to give notices of other exhibits at any length; but we noticed several new pattern wood-working machines, by F. W. Reynolds and Co., of Edward Street, Blackfriars Road, London, S.E.

* * * *

The Yarrow jointed pipe, patented by Yarrow and Co. (Bolton), Ltd., of Bolton.



The slight improvement in the state of the building trade in Ireland, noticeable since the beginning of the present year, still continues, several of the Dublin builders being extremely busy. Some of the Cork and Waterford and other provincial contractors are also briskly engaged.

* * * *

A very deplorable and fatal accident occurred the other day at the Liscannor quarries of Messrs. George Watson, of Liverpool and Dublin. One of the men engaged in quarrying was instantaneously killed by a premature explosion of a dynamite charge, and another man was very seriously injured. A large body of men working near at hand had a narrow escape.

* * * *

The Liscannor quarries are situated near the cliffs of Moher, in the County Clare, and are now in full working order, a large staff of men being in regular employment there. The stone is a fine, hard, and nice-looking stone, admirably adapted for any purpose requiring a hard and durable stone, and the prices at which Messrs. Watson are able to supply it compare favourably with most other building stones. The same firm are now in possession of the famous Mount Charles sandstone quarries. The Science and Art Museum and the National Library, in Dublin, are mainly built of Mount Charles stone, a beautiful cream-coloured stone. Hitherto the great difficulty in regard to Irish quarries was the unreliability of delivery, but Messrs Watson now undertake to supply the largest orders in remarkably quick time.

THE IRISH BUILDER AND ENGINEER.

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CONTENTS.

PAGE

Topical Touches	273
The International Building Trades Exhibition	274
LEADING ARTICLE:—	
Foundations	282
COMMENTS:—	
St. Paul's Cathedral in Danger	285
The Labourers' Cottage Competition	286
The Belfast City Hall	286
Building News	288
Architects and the L.G.B.	290
Our Illustrations	290
Engineering Items	293
A Banker's Steel Strong-Room	297
The Conditions of Contract	297
Arklow Harbour Works	298
Correspondence	301
Engineering News	302

FOUNDATIONS.*

For quite a number of years past the French and Americans have been leading the world in the most important development of the problems of civil engineering, and more particularly in those branches which are practically new sciences rather than the development of old systems. Notable amongst such matters is the use of concrete, both ordinary and reinforced. In particular in the practical literature of this and kindred subjects the American writers have become pre-eminent for their clear, exhaustive, and practical treatises, to which we have no counterparts. Such works represent not merely original and individual research, but are eminently practical, suited to the requirements of and instructive to the practitioner, differing materially from the elementary and very general text-book class of works commonly published in England.

Of the best class of American engineering standard books is the late Professor Patton's treatise on "Foundations." It is to be regretted that he did not live to see the second edition published, or even to correct its proofs; but that work has evidently been carefully completed by his literary successors.

In the very beginning the author takes a practical rather than a purely theoretical or empirical view of the problems involved, for he tells us in the preface that "in a work on foundations theories and formulæ are of comparatively little value; that, therefore, little space is devoted to their discussion." This is the tendency of all the best recent American work. The author gives the more common formulæ, without attempting to explain the laws upon which they are based. Theory and practice, we are told, should go hand in hand. He deplores, too, that in so many institutions claiming to be schools of engineering a great preponderance in time and energy is given to the theoretical side of the question, even to the exclusion of practical instruction, whereby erroneous ideas are instilled, to eradicate which years of labour, blundering, and mortification are required, with consequent loss to both employers and contractors. Onerous conditions, useless and impracticable requirements are in-

troduced, nearly all of which could have been saved by a practical acquaintance with a few modern developments of common and every-day practice. These are Professor Patton's own words almost when he deplores the "painfully scientific, abstruse, and purely theoretical text-books" he had to put into the hands of students for want of better.

The work we are presently considering is divided into a series of chapters dealing with foundations, of every class and from every aspect.

First of all, the foundation bed is defined and dealt with. The treatment of foundations nowadays has so widely different a character from, say, a century ago—and even half a century: until almost our own day—one might say foundations were not scientifically considered. With all the magnificent skill displayed in the middle ages in the scientific use of the arch and its marvellous adaptation for joining, they displayed a skill which we have not been able to improve upon; yet in the matter of foundations, rule-o'-thumb seems to have been the order of the day, and has left us a legacy of anxiety in connection with many an edifice of priceless national and historic interest, the maintenance of which has in several notable cases caused serious anxiety by reason of the failure of the foundations. In the structures built during the eighteenth century quite as trustful a faith was reposed in good luck as regards foundations, and rather daring things ventured, which, however it reflects on the scientific training, speaks well for the practical experience of the builders of those times, who could, as it were, set rules and formulæ aside and still win. A notable instance of this kind was disclosed in the late action by Messrs. Pearson against the Corporation of Dublin, which arose through the present engineers not unnaturally assuming that the Pigeon House harbour wall had some foundations, and went down to a solid bearing strata. As a matter of fact, it simply rested, and without any thickening, on the surface of the mud! And, strange to say, the whole embankments of the port would appear to have been similarly constructed. What engineer in our day would take such risks. The unsatisfactory character of much of the old foundation work is further shown by the fear lately occasioned by the proposal to run a large main sewer somewhere in the neighbourhood of St. Paul's Cathedral, although at a depth of 52 feet below the surface, and not within 45 feet of the building. The small faith reposed in the foundations is indicated by the fact that four of the most eminent architects in London have not hesitated—very unfortunately, we think—to put their names to a report declaring the construction of the sewer would probably be a source of danger! How they arrived at such a conclusion is mystifying, and one can only assume they have never paid much attention to the manner in which a sewer is driven nowadays, or adequately considered the question of possible or impossible subsidence over a tunnel.

It is very different nowadays when gigantic skyscrapers, bridges over rivers and estuaries like the Forth, huge reservoirs, docks and dams, and structures raised upon the softest and most treacherous of sand or mud are matters of almost every-day practice amongst engineers, while the developments in the employment of concrete, and more recently concrete steel, have produced what may be described as a complete revolution in the system of foundations for almost every class of structure.

Professor Patton's work deals very fully with the modern development of foundation construction, and incidentally treats of the various classes of foundation-bed likely to be met, varying from rock to silt, the general principles, methods, and materials used in foundations, and, in passing, he notes that absolute rules for proportions, while useful in certain cases, "become impracticable when handling large quantities with limited time and money." Concrete, brickwork, and masonry, retaining walls, arches, and piers, cements, limes, and sands are all dealt with in Part I. In Part II. we come to actual construction. There is a very interesting chapter on timber foundations, and

* A practical treatise on foundations, explaining fully the principles involved, supplemented by articles on the use of concrete in foundations, by W. M. Patton, C.E., late Professor of Engineering at the Virginia Polytechnic Institute. Second edition, enlarged. New York: John Wiley and Sons, 1906. London: Chapman and Hall.

we learn that the New Orleans Custom House, a heavy and massive granite structure, was built on a foundation of a series of rough logs laid longitudinally on a silt foundation-bed, the intervening space being filled with sand, broken stone or concrete, and other logs then placed, crossing the first at right angles. Slight failure has occurred, but no serious damage.

Considerable particulars are given relating to the construction of coffer dams, framed trestles, piers and their foundations, and particulars are given of the latest methods of making soundings or borings, and the appliances used.

A considerable amount of space is devoted to fully detailed descriptions of modern methods of sinking deep foundations, particularly in bad ground or under water, both by the "open crib" method, with its four timber-built walls and open top, or by the modern system of pneumatic caissons, now almost universally employed for deep work. Our readers will remember that some time ago we gave detailed particulars of the caisson work in the recently finished bridge over the Tyne at Newcastle, and also some observations by a medical scientist on "caisson diseases." Sometimes, however, a combination of the two principles is adopted, the pneumatic caisson for the deeper work, with an open crib above.

One of the longest and largest structures in which the open crib method was used in the Poughkeepsie Bridge over the Hudson River, New York. There was 3,094 feet distance between the end piers. Four cribs were used, with a bottom dimension of 60 x 60 x 104 feet height, battered regularly to the top. The structure finally rested on a bed of compact gravel 135 feet below low water. The description of the *modus operandi* is most interesting, but space prevents our giving any details. To the book itself we must refer our readers.

The pneumatic caisson system is now very well known, and has been already fully described in our columns. Suffice it to mention again, that the air is compressed into a cylinder or box, which drives the water out, so that the material can be excavated and removed, lifting it out in buckets, or allowing the air to blow the material through pipes regulated by valves, or else forcing it out by water-pressure. The persons employed on such work are subject to ailments, pains, and discomforts, attendant on working in several atmospheres, the pressure having been increased in some recent works, if we remember aright, to five atmospheres, or 75 lbs per square inch.

Air-locks are an essential feature, both for regulating purposes and for enabling men to get in and out without exhausting the compressed air below, and also to slowly accustom the men to the pressure—in fact, to practically inflate and deflate them, this operation having to be gone through every time they enter or come out, and occupying a long time. At any depth over 60 or 70 feet below the water surface, they seldom remain in the caisson for more than $2\frac{1}{2}$ hours at a time, the temperature in the working chamber, at a depth of 80 or 90 feet, being about 85 degs. to 95 degs. Fahr., in the air-lock usually 106 degs. to 125 degs. Fahr.; yet, strange to say, men in the caisson will do nearly twice as much work in the caisson as above ground. The working chamber should be, but is not always, lighted by electricity, as candles vibrate the air.

The men sometimes suffer from acute pains, known as "the Bends," and are subject to ailments caused by the violent changes of temperature they experience; paralysis sometimes results, and occasionally a blood-vessel bursts. Needless to say, only men in the prime of life and in the very pink of health and condition should be employed. The medical authority, whom we previously quoted, gives it as his opinion that no man over 40 years of age should be engaged.

Professor Patton's book deals with many other important matters connected with foundations, and has an extensive supplement giving many examples of interesting or important works executed and appliances used in modern practice.

Altogether, this work may be recommended as one of the very best books extant on the subject.

COMMENTS.

St. Paul's Cathedral in Danger.

St. Paul's Cathedral in danger! This, for some time past, has been an oft-repeated cry in the columns of the London *Daily Mail* and other newspapers. The substance of complaint is that a certain sewer is proposed to be constructed at a depth of 52 feet below the surface, and 45 feet from the south-west and south-east supports of the dome. A committee of experts, including Sir Aston Webb, Mr. T. E. Colcutt, Mr. John Belcher, and Mr. Mervyn MacCartney, was appointed to go into the matter and report thereon. In their report they observe that:—

"In view of the reported imminent construction of a sewer by the London County Council within 45 ft. of the south-west tower of the cathedral, we feel it our duty to furnish an interim report on this particular point, which has become so urgent and pressing.

"We may premise by pointing out that the three portions of the building that have from time to time shown the most significant points of weakness are the south-west tower and the south-west and south-east piers of the support of the dome. We find that there have been several proposals to construct a sewer on the south side of the cathedral in St. Paul's Churchyard. One commenced by the City Corporation in 1831 was abandoned on the danger to the structure being pointed out by the surveyor (Mr. Cockerell), though a sewer was actually constructed on this line in 1843, at a depth below the surface of 16ft. 3in. (but a smaller one).

"A tube railway has recently been proposed, but this, for the present, has also been abandoned.

"The present proposal of the London County Council is to construct a sewer running along the south side of the cathedral and only 45ft. from the south-west tower, at a depth of about 52ft. from the surface and only 16ft. below the assumed surface of the London clay, and it is contended by very eminent engineers that if the sewer, which we understand will be nearly the size of a tube railway, is constructed in the clay with a shield and protected by proper precautions and inspection, no harm can come to the cathedral.

"It is with great diffidence that we feel compelled to come to a different conclusion. But, bearing in mind the great difficulty, if not impossibility, of complete and adequate supervision of a work of this character and the disturbance that has undoubtedly been caused to surrounding buildings by works of a similar character in London, we are of opinion that the construction of such a sewer so near St. Paul's, after taking into consideration the present sensitive condition of the structure, might very possibly become a very serious danger to the cathedral fabric, and should, therefore, be opposed by the authorities by every means in their power in order to secure another route for this sewer, which would be free from any possible risk to the building."

This report has been embodied in the petition of the trustees of the cathedral to the London County Council.

The petition concludes by stating that the petitioners "are aware that the Bill for the proposed line of the sewer has received Parliamentary sanction, but that they consider that the gravity and urgency of the matter compel them to ask for a reconsideration of the case; and that your memorialists are strengthened by the belief that there is no question of serious public advantage involved which would cause the proposed line to be adopted rather than any other line between St. Paul's Churchyard and the river."

In the meantime the officials of the Council have made reports on the subject, and Sir Benjamin Baker has been consulted. His report is understood to be to the effect that the proposed sewer will not interfere with the cathedral in any way.

Now, it will be generally admitted that anything which implied danger or injury to the fabric of St. Paul's, or any failure in any part of the building, would be nothing less than a national disaster. St. Paul's is a unique and priceless heritage of the great period of the English Renaissance. In its way there is nothing like it in England, nor, indeed, in any foreign country that we know of. It rivals, and in several respects of proportions and design surpasses, St. Peter's in Rome. Indeed, Wrenn could never have been guilty of several of the vulgarities and incongruities of scale that Michael Angelo fell into. We all know, too, the poor foundations upon which so many masterpieces of ages past were built, so that one is naturally very chary to suggest any interference with the soil underneath or about the fabric of such a national monument as St. Paul's, or, indeed, any great building of historic interest. Nevertheless,

one cannot help feeling that most architects who have had no engineering experiences are apt to exaggerate the dangers and difficulties of purely engineering work, or else to under-rate them. To us it is difficult to understand under what circumstances a sewer 52 feet below the surface, and 45 distant, could be held to imperil the structure in question, unless upon a misapprehension of the premises. The sewer in question is described as of the dimensions of a tube railway. If it were a small sewer, laid at no great depth and close to the building, the source of danger is at once obvious. Were it at a much lesser depth, such as did not preclude the possibility of operating by "open cut," or even "cut and cover," even at a distance of 45 feet, there might be danger through subsidence after filling in; but in such a case as that now presented, the very existence of the sewer itself is dependent on the absence of subsidence. Subsidence to any extent would be fatal to its existence. Such a sewer as this would, of course, be laid by tunnelling; the shafts would probably be at very considerable intervals apart; the work would be driven by a Greathead shield or other similar appliance, and the sewer should either be so strong as in itself to resist all compression and consequent super-subsidence, or else be so protected as to effect the same thing. Either involves the packing and ramming home again of the surplus excavated earth. Then, of course, there is the natural arch formed by the overhead soil, which reduces the weight bearing directly on the sewer or tunnel to very small dimensions. Were it otherwise, the laying of sewers at any depth would be a very critical and costly operation, indeed. We can recall one instance of a tunnel for a small 18 inch sewer at a depth of 32 feet in loose, gravelly, boulder clay, driven rapidly, and the surplus excavation simply packed back with the loose clay; yet, after nearly two years, there is no indication on the surface of the smallest subsidence.

If an equally, or almost equally, convenient line further away from the Cathedral can be laid out, it would seem only prudent to take it, if only to allay fears; but if, on the contrary, there be serious difficulty in diverting the line of sewer, we should fancy some more cogent reasons would need to be advanced in order to prove St. Paul's to be really in serious danger. The suggestion that complete and adequate supervision is impossible cannot be borne out, and is at variance with past experience.

The Labourers' Cottage Competition.

We have received a most interesting letter, which we publish elsewhere, from Mr. T. M. Deane, whose design was placed third in the recent competition, and illustrated and commented on in our last issue. Of the premiated designs, Mr. Deane's was unquestionably the best and most practicable, with a good and sensible plan, of which it was in no disparaging sense that we observed that it had no features of striking originality; it would be hoping for rather too much to expect that, after three-fourths the architectural, engineering, and landowning minds of the entire kingdom have been hammering away at the problem for the past generation or two. Mr. Deane truly describes the problem as "impossible." Building in England speaking generally, is at least as cheap as in Ireland, and it has been found impossible to produce a cottage, at once serviceable, conveniently planned, substantial, and sightly, for £150—not to speak of £130. Either all regard for appearance must be sacrificed, or vice versa, comfort, and space for appearance.

The competition produced much meritorious work and some very clever contributions, but helped not at all to the solution of a problem that is plainly insoluble. The ideal cottage for an Irish labourer should, we think, be plain, very substantial, yet possess some claim to be considered sightly, contain a good kitchen at least 16 feet by 12 feet, one bedroom nearly as large, and a couple of smaller rooms, with, perhaps, a little pantry, and there should be a piggy and pig yard, hen roost, etc. All this will cost in the County Dublin from £180 to £220, according to locality, and no less. After all, is it not better to build a few cottages roomy and decent than a slightly larger number cramped and confined?

Mr. Deane observes an apparent inconsistency on our

part when we said at the same time that all the competitors had made their kitchens too small, and that none had seriously considered the cost. What we really meant was that none had completely solved the problem of cost, which Mr. Deane himself points out is impossible. If there were two feet added to the width of Mr. Deane's design it would be an admirable cottage for an Irish labourer, but its cost would be nearer £200 than £130.

Mr. Deane's priced bill of quantities, prepared by Messrs. Beckett and Metcalfe, is, on the whole, a fair one, but some of the prices are a bit low. 65s. is not enough for a square of slating and roofing complete, including rendering, ridge and hip or barge tiling, and lead valleys. This should be 70s. at least. 2s. 6d. is low for cut-stone sills or steps—say 3s. A concrete floor is not good enough for a labourer's cottage; it will be a constant source of expense in repairs, no matter how good it is. Strong fire-clay tiles, or fire bricks on flat, set in cement on 4-inch concrete, is necessary, and will save its extra cost in a very few years—say at least 4s. a yard laid. Lead in flashings cannot be done for 25s.—30s to 35s. is present price, we understand. 10d. for internal plastering is not enough for two-coat work, while dashing to be any use under the hard usage it will get in a labourer's cottage must be cement dashing, which will cost, say, 2s. £3 is low for the entire painting work of a house—priming and four coats, say £5. Grates and mantels, on the other hand, can be done for less than £3 15s.; a sufficiently good bedroom grate can be got for 7s., and ranges purchased in large numbers for 22s. 6d. each. Open bar grates much less—say £2 5s. in all.

All these prices are subject to local conditions and questions of scattered area, inconvenience in housing workmen, control, carting of material, etc., and the same plan in the same district will vary as much as 25 per cent. in the cost of execution, according to their sites and their situation.

There are, in addition, a number of little odds and ends which the prices quoted do not cover, and which have to be met. No tanks for storage of rain water, or drainage. No locks, bolts, or sash fasteners. If the cottage marked "C" or "D" respectively in our previous issue were built properly for £150 in the Co. Dublin it would be fairly cheap.

The Belfast City Hall.

The architect, Sir A. Brumwell Thomas, has served a writ upon the City Corporation for thirteen odd thousand pounds, balance of fees, and has, according to the suggestion of the members of that body, been offered a sum of £7,000 in settlement. It is unfortunate that so successful a work should terminate in such fashion. We trust that a way may be yet found out of the difficulty. In a recent issue of the *Northern Whig* the following letter appears:—

THE ARCHITECT'S FEES FOR THE NEW CITY HALL.

SIR,—For the benefit of those interested, might we state our experience in connection with the new City Hall contract? We sent in a tender for the leaded lights and stained glass, a small portion of which was accepted. The amount came to £114 7s. In this sum there was an item of £50 included by the architect for "lithography, photography, etc." The lithography consisted of nine (9) sheets of quantities. The photography (as far as we can remember) was eighteen (18) photographs, taken by a quarter-plate camera; four (4) of these gummed together formed the subject, and so much blurred and out of focus that any amateur would have been ashamed to own such a production. We refused to accept the portion of work allotted to us, when over 45 per cent. of the amount would have been handed to the architect. If such a percentage was chargeable on so small a section of the work as this, what was the amount chargeable over the entire work? Surely this question, now that it has been opened again, requires careful consideration by the Committee. A copy of the bill of quantities referred to lies in our office.—Yours, etc.,

W. F. CLOKEY & CO.

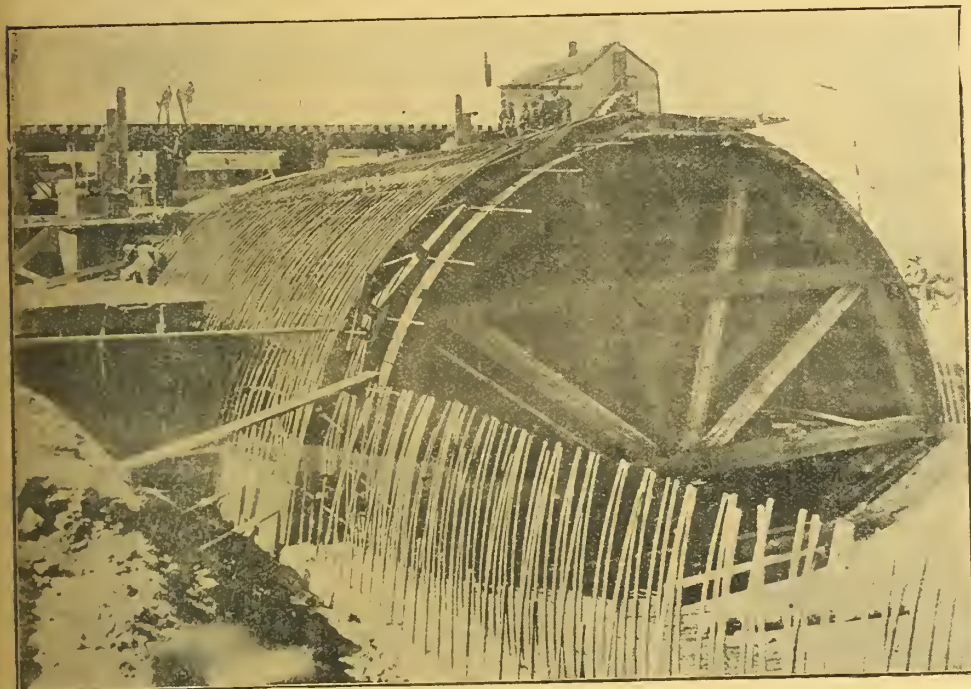
Glass and Colour Works, 7, 9, and 11 King Street,
Belfast 3rd April, 1907.

We can only charitably assume that Messrs. Clokey are mistaken as to the view they take of the architect's fees; but if there be foundation for the statement made, we must admit that they were amply justified in the course they took.

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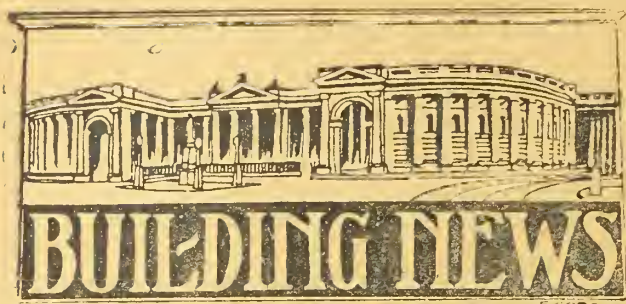
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 7 Arundel Street, Strand, London, W.C.



Athlone.—Mr. Gay Costello has been appointed temporarily as Borough Surveyor to the Urban Council.

The Urban Council invite tenders for the supply and erection of a bench of retorts on the regenerative system at their gas works. Tenders will be received up to May 1st.

Arklow.—The first meeting of the new committee formed for the promotion of the scheme for erection of a new Day Triades Preparatory School in Arklow, was held in the Courthouse, Arklow, on Monday evening.

Ballinasloe.—Mr. Larkin, in accordance with notice, moved that the Asylum Board ask permission from the Local Government Board to borrow £3,000 for the erection of cottages for the attendants. The proposition was seconded, and passed unanimously.

Belfast.—At the monthly meeting of the Committee of the Belfast and District Lunatic Asylum, the following resolution was moved by Alderman Hutton, and seconded by Alderman William M'Cormick:—"That the architect be instructed to proceed in the preparation of designs for the new Villa Colony Asylum, Purdysburn, and that when these have been approved by this committee, and the approximate estimate of costs ascertained, the working drawings be prepared, and the builder's specification drawn up, so that the work can be carried out in part or in whole, as may be determined upon by the City Council." The architects are Messrs. Young and MacKenzie, of Belfast.

The following glazing work has been executed by Mellows and Co., of Sheffield, whose Belfast agent is Mr. John McNeill, of Ocean Buildings, Belfast:—Newcastle Station, Co. Down; Downpatrick Station, extension for B. and C.D. Rly.; Londonderry Post Office; new warehouse for Messrs. M'Bride and Williams, Belfast (Messrs. Young and M'Kenzie, architects); new warehouse for Messrs. M'Bride and Co., Belfast (Mr. James A. Hanna, architect); new warehouse for William Hume, Esq., (Mr. D. M. Cooper, architect); new factory for Messrs. Rogers and Dunseath (Messrs. Hobart and Herron, architects); extensions for Messrs. Sinclair, Belfast (Mr. Henry Seaver, architect); new premises for Mr. Cheyne, Belfast (Messrs. Blackwood and Jury, architects); Great Mid. Rail. of Ireland, goods store, etc., Broadstone; Electric Power Station, Dublin Corporation; Tram Power Stations; Technical Schools, Kevin-street; South City Markets; Dublin Corporation, etc., etc.

Messrs. Courtenay and Co., Shaftesbury-avenue, are building a large warehouse in Arthur-street for Messrs. Harrison and Brown, furniture warehousemen, according to the designs and specifications of Mr. F. W. Henry, Ocean Buildings, Belfast.

Coachford.—Tenders have been received for improvements and extension to Rylane Roman Catholic Church. The architect is D. J. Coakley, Esq., Mathew Quay, Cork.

Clonmel.—Tenders are invited by the Committee of Management of the District Lunatic Asylum for the erection of two consumption hospitals at the above Asylum. J. F. Fuller, Esq., 179 Great Brunswick-street, Dublin, is the architect. Tenders to be lodged on 1st May, 1907.

Charleville.—Tenders have been received for alterations, additions, and improvements to Ballyhubbo House, Charleville, for Nicholas Fitzgerald, Esq., Fortlands, Charleville. Mr. Brian E. F. Sheehy, 57 George-street, Limerick, is the architect.

Cork.—Mr. John J. Fitzgerald has secured a contract for building a modern villa residence for Mr. Wm. Roche, on the Boreenmanna Road, Cork. Amount of contract, £630.

Coatbridge.—Dr. Charles O'Neill, at a meeting of the Old Monkland School Board, was successful in carrying his motion to erect a school in Coltswood-road.

A Higher Grade School is to be erected in St. John's-street.

Coleraine.—Tenders are invited for the brick and concrete, carpenter, slater, plumber, iron, painter, and glazier works of extensions, including a chimney, at Messrs. Brown, Corbett and Co.'s Killowen Distillery and Maltings, Coleraine. The plans and specifications have been prepared by Mr. Charles C. Doig, architect, Elgin, N.B. Tenders close Thursday, 25th, at 30 Victoria-street, Belfast, the office of the company.

Drogheda.—The C.D. and Drogheda Brewery Co. are erecting a new beer store at Drogheda. The contract has been secured by Mr. H. Henly, Drogheda. The plans and specifications have been prepared by Mr. F. Shaw, M.R.I.A.I., Drogheda, and 36 South Frederick-street, Dublin.

Dublin.—Mr. Robert J. Stirling, B.E., F.R.I.A.I., 24 Clare-street, Dublin, has prepared plans and specifications and accepted estimates for the erection of four new houses in Cole's-lane, on the estate of Messrs. Hickman and Bell. Mr. P. Shortall's (42 York-street) tender of £1,144 has been accepted. Mr. Shortall has also secured the contract for the erection of five cottages and shop in Williams-place, Sherrard-street, the estate of Col. R. Norton, according to the designs of Mr. Robert J. Stirling.

Tenders will shortly be invited for extending the premises of Messrs. Cahill and Co., printers, Great Strand-street and 40 Lower Ormond-quay, according to the plans and specification of Mr. Geo. L. O'Connor, C.E., M.R.I.A.I., 198 Great Brunswick-street. Quantities are being prepared by Mr. James Mackey, surveyor, 58 Dame-street, Dublin.

Mr. Mackey, who prepared the quantities for the Charleville Mall Library, was appointed at a special meeting of the Public Libraries Committee, held on the 12th inst., quantity surveyor for the new Carnegie Library, which is to be erected in Gt. Brunswick-st. The plans have been prepared by the City Architect, and are almost completed. The front of the building will be of Irish stone.

Mr. J. P. Wrenn, M.R.I.A.I., has changed his office from 198 Great Brunswick-street to 16 Nassau-street.

The Marlborough Street Training College have invited tenders for the extension of the boundary wall of the branch residence for women students at Glasnevin. The plans and specifications have been prepared by Mr. J. F. Fuller, 179 Great Brunswick-street. Tenders close 12 noon April 25th.

Additional Public Library, Charleville Mall.—The following firms have tendered for the above work as follows:—J. Navagh, Geo. Langley, P. J. Hussey, T. Mackey, Jas. Egan, W. Coniffe, J. Donovan, Farmer Bros., J. and P. Good, W. Connolly, A. Hull, J. Pemberton and Sons.

Messrs. Coates have in hands at present a contract for the complete installation of the electric light at the Irish International Exhibition. The plant for this work is 2,000 h.p., made up in 6 units of steam and gas. There are 600 arc lamps, 25,000 incandescent lamps, and about 50 motors driving various kinds of machinery in the stands. All the telephone and electric clocks, etc., are also being fitted by this company.

Tenders have been invited by the Great Northern Railway Company, Ireland, for the following work:—(1) Extension of general offices, Amiens-street, Dublin; (2) extension of post office rooms, Portadown Station. The plans and specifications can be seen at the Engineer's office either in Dublin or Belfast, and tenders close 10 a.m., 6th May.

Oughterard.—The Board of Guardians invite tenders for the building of a dispensary residence, offices, and a dispensary at Leenane. Tenders will be considered on the 27th April next.

Omagh.—A side altar for the parish church is being executed to the order of the Right Rev. Monsignor O'Doherty, P.P., V.G., Church of the Sacred Heart, Omagh, and has been designed by Messrs. Doolin, Butler and Donnelly, architects. The material is of pure white statuary marble. The antependium is divided into three richly cusped and moulded panels inlaid with Venetian enamel and gold mosaic. The end wings are supported by octagonal shafts of sunset Middleton marble, and form credence tables. The tabernacle is richly moulded, and carved with Mexican onyx shafts, the door of the tabernacle very richly mounted and engraved, gold gilt and set with jewels. At the sides of the tabernacle are two sculptured groups, representing "The Annunciation" and the

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THE MANAGER.

"Coronation" of the B.V.M., the whole surmounted by a very elaborate canopy and spire supported by six sunset Middleton shafts, with carved capitals and moulded bases. The entire work is being executed by Messrs. Patrick Tomlin and Sons, sculptors, Grantham-street, Dublin.

Scarva.—Tenders have been invited to 30th April for the erection and completion of an Orange Hall at Scarva, according to the plans and specifications of Mr. S. Wilson Reside, Margaret-sbuarc, Newry, where plans can be inspected.

Tullamore.—The Tullamore Board of Guardians will at their meeting, to be held on Tuesday, 23rd April, consider tenders for (1) repairs to Clara dispensary residence, and, (2) repairs and alterations to Killoughey dispensary residence.

Tipperary.—Tenders have been received for building new premises and carrying out improvements in the existing concerns of J. Millea and Co., Tipperary. The architects are Messrs. W. H. Hill and Son, 28 South Mall, Cork.

Whitehead.—Tenders have been invited for building of post office premises on King's-road, Whitehead, Co. Antrim, for J. C. Montgomery, Esq. The plans and specifications have been prepared by Mr. Charles MacAllister, Whitehall Buildings, 13 Ann-street, Belfast.

Youghal.—The Committee of Management have received tenders for the erection of a dining hall and other works, according to plans, etc., of Messrs. W. H. Hill and Son, architects, 28 South Mall, Cork.

TENDERS.

Mitchelstown Sewage Disposal Works for the No. 1 Rural District Council. Tenders received:—

Name.	Amount.
Mr. James O'Mahony, Mitchelstown ...	£1,350 0 0
Mr. James Roche, Mitchelstown ...	1,290 0 0
Mr. William Baird, Abbey Street, Dublin ...	1,250 0 0
*Mr. Denis Creedon, Fermoy ...	905 0 0

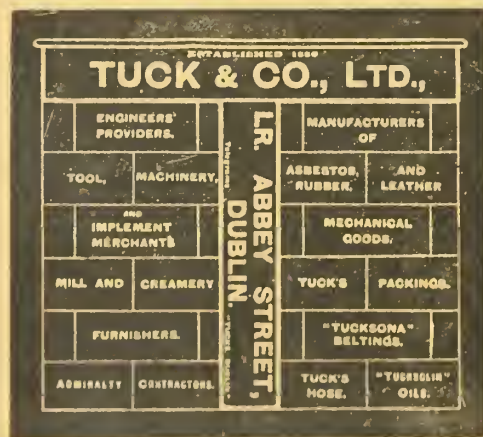
*Accepted tender.

Messrs. Kaye Parry and Ross are the engineers.

Three Modern Residences, Wellington Bridge, Cork.—Ten contractors tendered, and the the estimate of Messrs. John Kearns and Son, Builders, Merchant Street, Cork, was accepted. Messrs. W. H. Hill and Son are the architects.

New Dining Hall, etc., to the Auxiliary, Lunatic Asylum, Youghal, Co. Cork. Messrs. W. H. Hill and Son, architects:—1, £2,704 13s. 9d.; 2, £2,700; 3, £2,610; 4, £2,585; 5, £2,479; 6, £2,390; 7, £2,361; 8, £2,345; 9, £2,295; 10, £2,138, accepted, being the tender of Messrs. Murray and Sons, builders, Youghal.

Rebuilding No. 2 Chatham-street for Messrs. Lawson-Powell. L. A. M'Donnell, Esq., M.R.I.A.I., architect, 9 Hume-street. The following tenders were received:—H. J. Monks, £1,030; M'Loughlin and Harvey, Ltd., £1,020; Jas. Donovan and Sons, £1,020; and H. and J. Martin, Ltd., £999, accepted. Quantities were prepared by Mr. George Metcalfe, surveyor, College Park Chambers, Nassau-street.



ARCHITECTS AND THE L.C.B.

The following letter has been addressed to the Local Government Board by a number of practising architects in Dublin:—

"April 12th, 1907.

"The Secretary,

"Local Government Board for Ireland,
"Custom House, Dublin.

"SIR,—We, the undersigned, being qualified architects, practising in Dublin and the provinces, and engaged in connection with the erection of houses under the Labourers Acts, both before and since the passing of the recent Act, feel constrained to draw the serious attention of the Local Government Board to the nature of many of the appointments of so-called architects now being made in many parts of Ireland in connection with schemes under the Act.

"When the Bill was before the House of Commons, a clause was proposed by the then Chief Secretary, Mr. Bryce, and passed without any opposition, adopting the principle that persons appointed to fulfil the responsible duties of architects for the carrying out of work to the value of four millions sterling of public money should be possessed of at least some qualification, experience and fitness. Later, when the Board came to define this clause in more detailed fashion, the same principle was adhered to. Since then, unfortunately, the spirit of this legislation has been more honoured in the breach than in the observance, and qualified architects are thereby placed under a serious disadvantage. Prior to the passing of the recent Act, matters were bad enough, but since then the evil has been enormously increased, because every unqualified person appointed by district councils, whose appointment is sanctioned by the Board, now receives in that sanction what is practically a Government Diploma. As to the character of too many of these appointments, it is superfluous for us to here enlarge upon, as the Board must have much material for information at hand; but we respectfully submit that, as the evil results of laxity in the interpretation of this most proper and necessary clause is not confined to work done under the Acts, but automatically extends to every department of architectural and engineering practice, the Board should rigidly adhere to the spirit as well as the letter of the safeguarding clause, and we, with confidence, appeal to them to exercise the powers which the new Act has conferred upon them.

"We are, sir,

"Your obedient servants,

OUR ILLUSTRATIONS.

The Memorial to the Royal Dublin Fusiliers.

The plate we publish with this issue illustrates the memorial to the Royal Dublin Fusiliers who fell during the South African war. Our readers will remember that the regiment took a very prominent part in the war, no less than four battalions serving at the front, two battalions of regulars and two of militia, their war service beginning at the very outset of the war with the battle of Dundee, or Talana Hill, and only ending with the conclusion of peace.

The funds for the memorial have been raised by public subscription.

The memorial takes the form of a Roman triumphal arch, now being erected at the corner of St. Stephen's Green Park, facing Grafton Street, an admirable site.

The work when completed should have a most imposing effect. It suffers somewhat, in our view, from the "sweep" and connecting wings being somewhat restricted, and also from want of depth in the archway itself, but is otherwise an unusually effective design.

Our illustration is from a wash drawing by the architect, Mr. J. Howard Pentland, R.H.A. The work is already well advanced, and is being carried out in chiselled granite by the contractors, Messrs. Laverty, of Belfast. It is hoped that all will be completed early in the summer.

Mr. R. N. Tweedy, A.M.I.E.E., of Stourbridge, has been appointed manager of the Dublin and South of Ireland branch of William Coates and Son, Ltd., 5 Leinster-street, Dublin, and agent for the Westinghouse Co. in Ireland. For the past fifteen years he has been identified with progress in the electrical world. For nine years of that period he held posts as chief engineer of some of the largest electric tramways in the Kingdom, and latterly he has carried on business as a consulting engineer, in which capacity he has carried out important installations of light and power in hotels, private houses, factories, and works.

ENGINEERING SECTION.

ITEMS.

A visit to the seventh bi-annual Building Trades Exhibition at Olympia would surely impress on most minds the fact that the age of ferro-concrete has really arrived, for this material was exhibited in many and diverse forms through the building. Combinations of concrete and steel for walling, floors, piers and guides could be seen cheek by jowl with the thin partition of cement and metal lathing, and much ingenuity is displayed in evolving new methods by which rapidity and economy of construction are combined with durability and fire-resisting properties.

* * * *

For many years the officials of the Mersey Docks and Harbour Board have been much exercised in their minds owing to the serious erosion of Taylor's Bank, which forms the northern boundary of the Crosby Channel, the main entrance to the port of Liverpool. Sand is also constantly accumulating, and a heavy annual expenditure for dredging has been necessary to keep the water-way clear. The Board has now decided to make a bold attempt to deal with the trouble and reduce the maintenance charge by constructing a masonry revetment wall $2\frac{1}{2}$ miles long. The scheme was designed by Mr. A. G. Lyster, engineer to the Board, and has been approved by many eminent engineers, including Sir John Wolfe Barry and Sir Benjamin Baker, and it is confidently expected that the erosion will be permanently prevented.

* * * *

It is interesting to note that "Tantalum," the rare metal which is heard of more frequently, in recent years, in connection with electric lamps, was so named by its discoverer, Ekelberg, owing to the tantalising difficulties which he experienced in obtaining the metal from the ore. It was but two years ago that the discovery was made that the hitherto so-called tantalum was but a carbide, and much further research and experiment were necessary before the metal was produced in its pure state. The chief quality of tantalum is its extreme hardness. To demonstrate this, a diamond drill bore, revolving at 5,000 revolutions per minute for three days, made a depression of less than one hundredth of an inch in the metal, the diamond meanwhile having become entirely dull and smooth. Hitherto it has been found impracticable to properly alloy tantalum with steel on a commercial basis; but for scientific instruments, in which accuracy and durability are of more importance than price, it will doubtless become much used. In the electrical world it has come to the front with startling rapidity, especially on the Continent; the conditions in Great Britain have, however, militated against its adoption in the bulb lamp of small candle-power.

* * * *

A most interesting paper on the design of small sewage installations was lately read in Edinburgh by Dr. Gilbert J. Fowler, of Manchester. Discussing the conditions to which designs of sewage installation must conform, if they are to be successful, he dealt with tank construction, and said it was safe to conclude that the sewage of each person diluted to 20 gallons per head should receive at least sixteen hours' tank treatment. With regard to the problem in connection with irregularities of flow, Dr. Fowler submitted some special features that had been embodied in Admiralty works at Shotley, near Harwich, where, in order to cope with fluctuations in population, the tanks were constructed in sections, each of which is capable of dealing with the sewage of 600 people, and when the population dwindled in holiday time to about 100 an arrangement was made by which the exit chamber of one of the tanks could be used separately. Dealing with bacteria beds, he explained the construction and system of contact beds and continuous filters, stating that, in a complete installation, no bed should be a size greater than would allow of its being filled and emptied within a period during which aerobic conditions are maintained, as a maximum about four hours. Frost was less of an inconvenience and danger in contact beds than with continuous filters. To successfully deal with the sewage problem cordial co-operation was required, on the one hand, of the chemist and bacteriologist, and of the architect and engineer on the other.

We understand that at a recent meeting of the Council of the Institution of Civil Engineers, Ireland, selected candidates for the post of Clerk to the Council attended. After some discussion Mr. Gillman was appointed on probation. Mr. Gillman has for some time acted as Hon. Sec. to the Phoenix Cricket Club.

* * * *

A report has just been issued by the West Australian Government on a series of 16,000 timber tests conducted under the superintendence of Mr. G. A. Julius, of the State Railway Department. The experiments covered inquiry into resistance to tensile, compressive, transverse, and shearing strains and classification of weight, hardness and co-efficient of elasticity, also as to resistance against impact and power of holding spikes. The sap was also chemically analysed, and its effect upon metals and other materials was ascertained. The tabulated records will undoubtedly prove of great use to the contractor and engineer for reference, and will form a suitable addition to those issued some time ago by the United States.

* * * *

We note that Mr. W. Addington Willis, LL.B., London, has recently published the ninth edition of the Workmen's Compensation Act, 1906, which, owing to the alteration of the law in reference to workmen's compensation, forms practically a new book. The Act of 1897 affected some 6,000,000 workpeople, but the extension, it is expected, will affect double that number. We hardly are at one with the author's statement that the new Act "will sweep away the incongruities created by the original statute by extending its benefits to nearly every kind of employment." Indeed Mr. Willis himself is unable to classify the casual labour which may come within the scope of the Act, admitting that "its full effect is not easy to gauge, and it will require much working out," and dismissing in a few lines one of the most important points upon which information will be required. If such a well-known authority will venture no opinion it may be surmised that the provision relating to casual labour is open to the widest interpretation, and as it is the casual employee who will doubtless endeavour to strenuously claim advantages under the Act, private litigants will be compelled to define the clauses in the Law Courts. This is an expensive and unsatisfactory method of clearing up the obscurity surrounding one of the most far-reaching and loosely drafted Bills ever inflicted on the country.

* * * *

The Chief Secretary for Ireland was recently asked whether the Department of Agriculture has drawn his attention to the increased quantity of timber exported from Ireland during the last four years as compared with previous years, and the practice of landlords to strip of trees the estates they are about to sell, and has the Government any powers to stop or check the destruction of trees or to require fresh plantation; and, if not, will he ask power from Parliament this session. Mr. Birrell, in reply, stated that 115,000 tons of timber were exported from this country in each of the years 1904, 1905, and prior to the former date no approximate returns are available, nor are the returns complete for 1906. The Estates Commissioners have no power to interfere with the cutting of timber on estates about to be sold. Allegations have been made that some landlords have cut down timber in anticipation of sales, and also that tenant purchasers have disposed of their timber to a considerable extent. This question is, as we have from time to time stated, one of the greatest importance to this country, and the Land Purchase Act will prove anything but a boon if it results in a wholesale denudation of timber. It is, perhaps, natural to expect that the land owner will take all he can out of his estate prior to its sale, and that the purchaser will promptly seek to turn his newly acquired timber into coin of the realm. This being so, and as tree-planting in Ireland has become, so far, neither a recognised duty or a social function as in America, it is satisfactory to learn that the danger will be considered by the Government in the event of the introduction of legislation for amending the Land Acts.

A Commission has been appointed by the Lord Lieutenant to hold enquiry and take evidence as to the necessity for rebuilding the John Bridge, Kilkenny, the Corporation and Urban Council having submitted a joint memorial to His Excellency for a grant in aid of the work. The Commissioners are—Messrs. G. Horan, B.L.; Geo. P. Sheridan, A.R.I.B.A.; and the County Surveyor.

* * * *

It was lately decided, by the Council of Ministers at Cairo, that the height of the Assuan Dam should be raised sufficiently to increase the depth of the storage reservoir by seven metres. An exhaustive survey of the Nile Valley between Wadi Halfa and Khartoum had previously been made, and, as a result, it was found that no suitable site could be secured for a second reservoir, consequently the existing dam would have to be raised. The quantity of water stored will be more than twice that reserved at present, and will be sufficient to irrigate about one million acres. In the northern parts of Egypt there are some 900,000 acres of land, partly the property of the Government, which are practically valueless owing to want of water, and the new engineering work, which will cost one and a half million sterling, and take six years to complete, will reclaim this waste land and make it available for raising a cotton crop, with an estimated annual return of four million sterling. Archaeologists will regret to hear that the operations will still further submerge the Temple of Philae and other early Egyptian ruins, although every care will be taken to preserve them as far as possible.

* * * *

A leading London architect has recently suggested that in rebuilding Southwark Bridge the sides should be lined with houses. The plea advanced for a reversion to mediæval bridge construction, or rather design, is that the two sides of a city are brought into closer communion by such treatment, that the connecting bridge becomes merely a street amongst others, and the traveller is unaware that he is crossing a dividing stream. Such theorising may be very pretty, but it certainly is not practical, and overlooks the salient points of bridge design. River beds are not, as a rule, the safest of foundations, and in most cases the piers and abutments of the ordinary type of bridge have to be erected of large sectional area. If the additional weight of buildings had to be provided for, the increased area of the piers would be such as to seriously decrease the waterway, whereas in new bridges it has hitherto been customary to increase the spans and interfere with the waterway as little as possible. The question of vibration has also to be considered; the comfort of the inhabitants of the ferro-aqueous thoroughfare, during the passage of a traction engine or a motor omnibus, would be seriously interfered with, and from this point of view alone the suggestion appears fantastic. And river views in most cities have their peculiar charm; even in Dublin, despite the Metal Bridge to the west and the viaduct to the east, a glimpse up or down-stream on a clear bright day is a memory not soon forgotten; so that from the æsthetic point of view it would be a sad loss if open bridges were to make way for a series of narrow lanes.

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ARCHITECTURAL ASSOCIATION OF IRELAND.

At the last ordinary meeting of the above society, the new Downes' medal was handed to the winner, Mr. G. F. Beckett, M.R.I.A.I., who submitted a fine collection of sketches in competition for the prize last session. The medal is of bronze, 2½ inches in diameter, bearing on the obverse the well-known crest of the Association, in high relief, and on the reverse the name of the medal and the winner, surrounded by a wreath of laurel. The die was presented to the Association by Mr. Harry Allberry, A.R.I.B.A., to mark his year of office as President, and the medal will in future be offered annually for the best portfolio of sketches, some of which must be of Irish work, submitted by competitors, the object being to encourage interest in national architecture. The medal was struck by Messrs. West and Son, of College Green, and will shortly be on view in the rooms of the A.A.I.

A NOVEL ENGINEERING FEAT.

When the course of the new motor car racing track at Brooklands, in Surrey, had been finally settled, the proprietors found it necessary to carry the track in some suitable manner across the River Wey, close to the seven-arch viaduct on the London and South-Western Railway Main Line. At that point the river followed a winding course, and with a back-water seemed to involve the construction of a viaduct some 550 ft. long by fully 100 ft. wide. The problem was further complicated by the fact that the track, descending from the wooded elevation, known as Fox Hill, demanded the super-elevation of 26 ft., or, in other words, that one side of the bridge would be 26 ft. higher than the other. Moreover, it was seen that the bridge would have to be built on a curve, and with a concave surface so as to provide for the safety of high-powered racing cars tearing along at the speed of nearly 100 miles an hour. To build a masonry viaduct would have proved very costly, especially in view of the extensive foundation work requisite for avoiding the risk of settlement in soft alluvial soil, and a steel viaduct must have involved equally heavy outlay if built of sufficiently massive proportions to avoid elastic vibrations, constituting a possible menace to vehicles already quite prepared to jump about and striving to follow a straight line instead of the curved course dictated by the track. After careful consideration the engineering advisers to the proprietors decided to divert the Wey into a new channel, filling up the original beds of the river and its back-water, and to throw across the new channel a bridge in Hennebique ferro-concrete. This structure, which has been completed within a very short time, is nearly 200 ft. long by 100 ft. wide, and was designed by Mr. L. G. Mouchel, C.E., of Westminster. It is founded on ferro-concrete piles driven in the usual way, and upon these is raised a framework consisting of columns, bracing, and beams, and finished with a curved deck slab, all of concrete, so reinforced with steel as to form an exceedingly strong and rigid structure. At the back one end of the bridge rises to the height of nearly 30 ft. from the ground, gradually falling until at the other end it is only about 19 ft. high. At the front one end of the bridge is about 4 ft. high, and the other end is nearly level with the ground. The bridge is curved to a radius of about 1,000 ft., and the concave deck is curved to such an extent that the maximum slope is 1 in 2, and cars travelling close to the outer edge will hang over at an apparently perilous angle. In spite of the strangely contorted form of the bridge, no difficulty was encountered in its design and construction, owing to the facility with which ferro-concrete can be moulded on the site to any desired shape. As it now stands the work is monolithic throughout, as if it had been carved out of one solid block of granite, but it is far stronger than natural stone, because every part is strengthened by steel sinews, by which also all the parts are tied together.

◆◆◆◆

The Carron Company, of Carron, Stirlingshire, have been successful in securing the contract for supplying the whole of the catering departments at the forthcoming Irish International Exhibition, to be held in Dublin, with their "Carron" gas, steam and coal cooking apparatus.

* * * *

Ballina District Council recently received applications from Mr. M. J. O'Boyle, Assistant County Surveyor, and Mr. G. L. Joynt, C.E., for the vacant post of engineer under the new labourers' cottages scheme. The Council gave the appointment to Mr. O'Boyle, on the ground that his was the lowest tender. The Local Government Board, however, refused to sanction the appointment, contending that Mr. O'Boyle did not possess the necessary qualifications; but the guardians decided to adhere to their decision. At Wednesday's meeting of the Council a further letter was read from the Local Government Board, repeating their refusal to sanction the appointment, and the Council adopted a resolution declaring that Mr. O'Boyle was quite competent to carry out the necessary engineering work.

ARCHITECTS WANTED

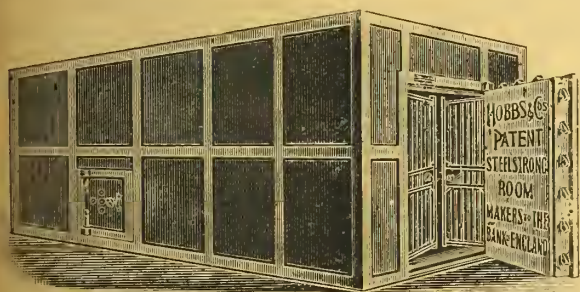
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A BANKER'S STEEL STRONG-ROOM.

Messrs. Hobbs, Hart and Co., Ltd., the eminent lock and safe manufacturers, of London, hold a deservedly high reputation amongst architects and in the trade, and the fact that amongst their more important clients is the Bank of England is in itself a warranty for the excellence of their manufactures.

Our London representative was recently privileged to inspect a steel strong-room of exceptional strength, which they had erected on the premises of a London Bank, and it is our pleasure to give an illustration and the following short description of same.

The external dimensions are about 18 feet long, 10 feet wide, and 9 feet high. The total thickness of walls, floor, and ceiling is 8 inches, built from heavy plates of their special steel, drill-proof, and infrangible, with very heavy exterior and interior frame-work of steel, giving an enormous degree of protection from any burglarious attack, and also from the impact of falling masonry or other heavy building material. It is provided with massive entrance and emergency doors, both of great strength and controlled by Hobbs Co.'s patent clutch bolts, operating on all edges. These bolts, which are of very powerful proportions, pass out of the door by a circular movement, and "clutch" into the door-frame in such a manner as to effectually withstand any attempts at wedging or forcing the door-frame from the door edge. The bolt mechanism



is so accurately balanced that, notwithstanding the great weight, it is most freely moved into the bolted or unbolted position with one hand. The bolts are secured by a series of three separate Hobbs Co.'s patent "Protectors" locks, each of which has its own special feature and character, each being designed to frustrate one or more of the different modes of attack by the scientific burglar. Protection by their means is provided, for instance, from the use of fraudulently copied keys, from the use of high explosives, from fusing apparatus, from chemical solvents, and of necessity all are absolutely unpickable. Again, provision to announce the attack of burglars is made by an ingenious electric device, of which Messrs. Hobbs, Hart and Co., Ltd., make a speciality, and which has been applied with eminent success to a considerable number of bankers' strong-rooms.

The erection of this magnificent piece of work has entailed the employment of some 60 tons of material, of many thousands of powerful screws and drill-proof rivets. The plates and framework are arranged in such a manner that there is no through joint, each section being fitted in such a manner that it locks its predecessor in position, and each set of rivets and screws reinforces the preceding set. Protection from fire is afforded by a series of chambers holding fire resisting chemicals on Hobbs Co.'s special system, and lining all the interior surface.

Accommodation for the storage and classification of its contents is provided by strong shelves, etc., and the interior is electrically lighted, the current being automatically switched on or off when the door is opened or closed, so that in the latter position no accident can happen from fused wires or sparking.

It is of further interest to note that the whole is independent of any brickwork and masonry, except for the concrete foundation, while it is surrounded by a patrol chamber, in which is placed the watchman's clock and recording apparatus, to ensure efficient inspection by the night watchman.

The United Chemical Works, Limited, of 94 Leadenhall Street, London, manufacturers of the "Ino" incandescent mantle, inform us that they have taken space in the Irish International Exhibition to the extent of 1,000 square feet in the Gas Pavilion, where they will show the whole process of manufacture of the Ino mantles.

THE CONDITIONS OF CONTRACT.

In the course of a lengthy article on the present controversy between Dublin architects and builders, the 'Master Builders' Association Journal' makes the following remarks:—

"The framers of this extraordinary document seem to have been more concerned to protect the architect from the consequences of his own mistakes than to guard the mutual interests of the principals to the contract. For instance, in the form of invitation to tender which accompanies the conditions, and which expressly says that the 'receipt of a tender will be considered as evidence of the tenderer's willingness to carry out the contract under the said conditions of contract,' it goes on to say: 'Bills of quantities have been prepared by —, but as they do not guarantee their accuracy,' and no provision is made elsewhere for the contractor to be afforded an opportunity of checking their accuracy, nor for subsequent rectification of errors. Here we have quantities prepared and paid for by the employer through his agent, the architect, and yet the responsibility for all errors, however negligently the preparation of the quantities has been carried out, is laid upon the shoulders of the contractor. Again, the arbitration clause is strictly confined in its operations to the quantities and prices relating to deviations only—however the architect may negligently or inefficiently perform his duties, there is no appeal from his decisions on matters in which his personal action is concerned; whatever happens, he is to be free from responsibility. Again, whether any provision is made in the quantities for such work or not, the contractor is responsible for the protection of the works from frost, snow, or heavy rains. It is usual in properly drawn quantities in this country to provide in them for such work, but if the architect or his surveyor neglects to do so the blame for the omission falls upon the contractor. When the contractor makes any mistake, however, he is quickly penalised as in Paragraph 5 of Clause 9. When application is made for a certificate the contractor must, on making his application, hand in to the architect a statement in writing of all work which the contractor may consider extra to the contract, and which may be done or in progress at the time of making the application. 'Any such work which may be executed before the granting of the first certificate or between the dates of any two certificates, but which shall not be so returned when applying for the certificate next following, shall not be considered as work extra to the contract, unless subsequent written approval be obtained.' Space forbids further quotation from this most unfair document, but enough has been given to show what ample grounds the builders of Ireland have for offering the most strenuous opposition to its adoption."

ANSWERS TO CORRESPONDENTS.

Holy Cross Abbey.

H. J. Prosser., Youghal. The measured drawings of Holy Cross Abbey, referred to in our last issue, were published, if we remember aright, early in the sixties by Mr. Samuel P. Close, F.R.I.A.I., Architect, Belfast, who was awarded a silver medal by the Royal Institute of Architects of Ireland. The publication is now, we believe, out of print. Copies of the work are in the Library of the Architectural Association of Ireland and the National Library of Ireland. The only means by which a copy could be got would be by advertising or through a second-hand book-seller

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ARKLOW HARBOUR WORKS.

Some time since the Arklow Harbour Board succeeded in getting a free grant of £14,000 towards the improvement of the harbour, while Wicklow was promised a still larger sum. The Arklow Board, having first proposed to throw the onus of selecting an engineer to design and superintend the execution of the necessary works, estimated to cost £14,000, upon the Government, eventually asked Mr. Allanson Winn to act as their engineer. Designs were prepared and approved, when, as set forth in a recent issue, a Government Department sent down an engineer, who, with singular want of professional good form, submitted designs upon a wholly different basis, and, of course, this new scheme was put forward free of charge to the local authorities, and was duly adopted, or, possibly, some might say, forced upon them. The adoption of the new engineer's scheme, naturally enough, involved the abandonment of Mr. Winn's. One might have supposed that the long experience of the achievements of Government Departments in the design and execution of piers, harbours, schools, teachers' residences, and so forth would have reminded the Harbour Board that as often as not the piers were built upon high and dry land inaccessible to water, the harbours were open to prevailing winds, and the last place of refuge likely to be sought by the experienced amongst those dwellers locally, "who go down to the sea in ships," while the Irish Government Schools are monumental as being the worst planned and ugliest schools of any civilised nation. But, taking everything into account, and making the fullest allowance for the local Board's desires to remain *persona grata* with the Government, one would suppose they would not object to pay the engineer his proper fees upon the abandonment of a duly approved scheme. Yet we find a proposal to buy off Mr. Allanson Winn with a beggarly lump sum upon a scheme which he had designed, practically completed in working drawings and specification, locally approved by the administrative Board. The matter was in due course referred to Government, and the following reply was received:—

Dublin Castle, 6th April, 1907.

With reference to your letter of the 12th February on the subject of Mr. Allanson Winn's claims in connection with the harbour works, and stating that the opinion of Mr. Griffith, the Government advising engineer, was taken on the question, and that he advised as follows:—"As no definite agreement was made, it is very difficult to decide what compensation should be granted to Mr. Allanson Winn for disappointment at the abandonment of the works. I am unaware of any hard and fast rules recognised by your engineers to meet the case. It has occurred to me that the custom generally followed in regard to architects' fees might be accepted by the Government as a solution of the difficult case. The custom is to charge five per cent. on the cost of the new work if it exceed £1,000. If plans are prepared for works which are not carried out the charge is one-half of the above, or 2½ per cent. on the estimated cost of the work. Applying these rules to the case under discussion, and accepting Mr. Allanson Winn's letter of the 8th January, 1906, and the estimate contained therein as the agreement between Mr. Allanson Winn and the Arklow Harbour Commissioners, Mr. Winn's fees at 2½ per cent. on the estimated cost of the work would amount to £327 10s., of which he has been paid £50. If the Government accept these figures a balance of £277 10s. would be still payable."

If the Harbour Board decides to recommend Mr. Allanson Winn for a further sum of £277 10s. in addition to the payment of £50 already made, and if they will submit Mr. Allanson Winn's acceptance of the payment in full discharge, his Excellency is prepared to authorise its being made out of the grant of £14,000 for the Arklow harbour works. Your obedient servant,

J. B. DOUGHERTY, Under-Secretary.

Notwithstanding the foregoing letter, which admitted Mr. Winn's claim to fair remuneration, the following debate took place:—

Chairman—Do you think that sum, £227 10s., is a fair one to Mr. Winn and to the Harbour Board?

Mr. Byrne—It is so strange to us that for my part I am not able to give an opinion. I don't know the custom in

such cases. There is no doubt but that Mr. Winn was employed, and he was not dismissed. His services were dispensed with without any notification to him. Virtually he is the engineer to this Board, if not actually.

Mr. Udall—Has any other scheme been officially accepted? Mr. Byrne—Yes; at the conference on the 31st January, at which Mr. Cockin, your representative, was present.

Mr. Udall—Well, therefore, you can tell him now that his services were dispensed with.

Chairman—But that does not deal with the question whether £277 10s. would be a reasonable sum to pay.

Mr. Byrne—It is 2½ per cent. on the amount to be expended. Mr. Winn had certainly gone to considerable trouble in preparing plans, submitting them and coming down there.

Mr. Condren thought that the amount proposed to be allowed was too much for the services rendered by Mr. Winn. He did not, however, wish to oppose in any way the arrangements of engineers in such cases, but that in his opinion would be very heavy payment for the services rendered.

Mr. Byrne agreed, and said that if Mr. Winn had to earn the full five per cent. he would have had to do a good deal more work.

Mr. Condren said that Mr. Winn was employed by them on the conditions that the Harbour Commissioners would be permitted to carry out the works on the lines suggested by him, and as the work had now been taken out of their hands he did not think that Mr. Winn was entitled to his fees on the full money. If he got £150 it would in his (Mr. Condren's) opinion be very fair remuneration for that Board to give. The Harbour Commissioners were not dealing with their own money, but with money that was given them for the benefit of the port, and they could not be giving it away like that.

The Chairman said that in his opinion Mr. Condren's was a fair suggestion.

Mr. Byrne—It is very reasonable.

Mr. Condren moved that the Under-Secretary be informed that in the opinion of the Harbour Commissioners £150 would be fair compensation to allow Mr. Winn for the services he had rendered.

This was seconded by Mr. Kearon, and passed without dissent.

As a matter of fact, architects claim three per cent. commission when a work is stopped at the stage of obtaining tenders, and that would appear to be the stage at which Mr. Winn's work was determined.

Admittedly Mr. Winn is entitled to 2½ per cent. commission—more probably 3 per cent. He is entitled to some compensation for the loss and disappointment. Taking all into consideration, a fee of 3 per cent. on the outlay would be a reasonable fee to offer under the circumstances, or, say, £420.

It is somewhat disconcerting to find Mr. Griffith as arbiter of the destinies of fellow-engineers. Mr. Griffith is a very distinguished engineer, and a past President of the Irish Institute; but we must protest against a public official being retained to act in such capacity. Mr. Griffith is the engineer to the Port and Docks Board, and has a quite sufficiently important office to occupy the energies of any ordinary engineer. We have in season and out protested vigorously against the employment of county surveyors in like capacities, and the same applies to other public offices. If the Government required guidance in such a matter, there are plenty of independent Irish engineers in a position to afford it.

The Free-Flow Pipe Company, of Corridor Chambers, Market Place, Leicester, have recently introduced an improved stoneware sanitary pipe and socket known as the "F. F." or "Free-Flow Pipe." In this the socket is strengthened, and a portion of it tapered slightly internally to correspond with the tapering of the spigot end. Sufficient play is allowed here for a mastic watertight cement joint; but in addition there will be the usual cement joint and outer fillet. When thus doubly jointed a drain would present a marvellously true and cylindrical bore without the lipping or overlapping which is usually met with where the ordinary socket and spigot pipes are used, and when the trench is filled in no appreciable tilting at either end can possibly take place. The cost is very little beyond that charged for ordinary stoneware pipes.

CORRESPONDENCE.

LABOURERS' COTTAGES COMPETITION.

TO THE EDITOR IRISH BUILDER AND ENGINEER.

SIR,—I thank you for the way you speak of my design for the above in your issue of 23rd inst. I think that though it was placed third, I may claim that it went nearest to solving the impossible problem set us of providing specified accommodation and specified cubic capacity in a cottage to be built for £130. I found that all this would allow us was 4d. per cubic foot, and I cut my coat according to my cloth, which naturally left no scope for originality, though I sent in a third design (not published) with an upper floor, in which there was a little more out of the common; but the consequence was that though the cubing was actually less than in the other cottages, the price worked out higher in detail.

You say that all the competitors made the kitchens too small, and that none seriously considered the cost, but does this not show that the cost was considered, as we would naturally prefer a better cottage and larger rooms? The limited cost limited the size. I can only speak for myself; but to show that I did consider the cost, I have pleasure in lending you the rough quantities which Messrs. Beckett and Metcalfe took out for me, and which I hope you may find of sufficient interest to publish.—Yours, etc.,

THOS. M. DEANE.

VALUATION OF LABOURERS' COTTAGE.

Cottage marked C in IRISH BUILDER, 23rd March, 1907.

	£	s.	d.
13 yds. cube Excavation, at 9d. ...	0	9	9
13 yds. cube Foundation Footings, at 10s. ...	6	10	0
56 yds. cube Rubble Masonry and Brickwork in walling, at 12s. ...	33	12	0
17 yds. suppl. Walls under 6 inches thick, at 3s. ...	2	11	0
35 ft. linl. Sills and Steps, at 2s. 6d. ...	4	7	6
8 sqrs. Slating and Roofing, at £3 5s. ...	26	0	0
3 qrs. Lead in Flashing, at 25s. ...	0	18	9
20 yds. suppl. Concrete Floor to Living, at 3s. ...	3	0	0
24 yds. suppl. Bedroom Floors and Joists, at 3s. ...	3	12	0
2 yds. suppl. Hearths ...	0	10	0
18½ ft. suppl. External Door and Frame, complete, at 2s. ...	1	17	6
47 ft. suppl. Internal Doors and Frames, complete, at 1s. 4d. ...	3	2	5
98 ft. suppl. Windows, complete, including glass, at 1s. 10d. ...	8	19	8
152 yds. suppl. Internal Plastering, at 10d. ...	6	6	8
65 yds. suppl. Dashing, at 10d. ...	2	14	2
Item, Painting throughout ...	3	0	0
No. 4 Grates and Mantels ...	3	15	0
Item, Eaves Gutters and Downpipe ...	2	10	0
52 yds. suppl. Lath, Plaster, Float, and Set Ceilings, at 1s. 6d. ...	3	18	0
Amount for Cottage	£117	13	8

OUT OFFICES.

	£	s.	d.
3 yds. cube Excavation, at 9d. ...	0	2	3
3 yds. cube Foundation, at 10s. ...	1	10	0
9 yds. cube Walling, at 12s. ...	5	8	0
14 yds. suppl. Roofing, Galvanised Iron, at 3s. ...	2	2	0
19½ yds. suppl. Dashing, at 10d. ...	0	16	0
2 yds. suppl. Floor, at 3s. ...	0	6	0
No. 1 Door ...	1	5	0
Item, Painting, etc. ...	0	5	0
Amount for Out Office	£11	16	3

	£	s.	d.
Cottage ...	117	13	8
Out Office ...	11	16	3

Total £129 9 11

Cottage marked D in IRISH BUILDER, 23rd March, 1907.

	£	s.	d.
13 yds. cube Excavation, at 9d. ...	0	9	9
12½ yds. cube Footings, at 10s. ...	6	5	0
58 yds. cube Rubble Masonry or Brickwork, at 12s. ...	34	16	0
20 yds. suppl. Walls under 6 inches thick, at 3s. ...	3	0	0
33 ft. linl. Sills and Steps, at 2s. 6d. ...	4	2	6
8 squares Slating and Roofing, at £3 5s. ...	26	0	0
1 cwt. 0 qrs. 26 lbs. Lead, at 25s. ...	1	10	9
20 yds. suppl. Concrete Floor, Living, at 3s. ...	3	0	0
24 yds. suppl. Bedroom Floor and Joists, at 3s. ...	3	12	0
2 yds. suppl. Hearths ...	0	10	0
20 ft. suppl. External Doors and Frames, complete, at 2s. ...	2	0	0

	£	s.	d.
63 ft. suppl. Internal Doors and Frames, complete, at 1s. 4d. ...	4	4	0
91 ft. suppl. Windows, complete, at 1s. 10d. ...	8	6	10
154 yds. suppl. Internal Plastering, at 10d. ...	6	8	4
65 yds. suppl. Dashing, at 10d. ...	2	14	2
Item, Painting ...	3	0	0
No. 4 Grates and Mantels ...	3	15	0
Item, Eaves Gutters and Downpipe ...	2	10	0
52 yds. suppl. Lath, Plaster, Float, and Set Ceiling, at 1s. 6d. ...	3	18	0

Amount for Cottage £120 2 4

OUT OFFICE.

	£	s.	d.
3 yds. cube Excavation, at 9d. ...	0	2	3
3 yds. cube Foundation, at 10s. ...	1	10	0
9 yds. cube Walling, at 12s. ...	5	8	0
14 yds. suppl. Roofing, Galvanised Iron, at 3s. ...	2	2	0
19½ yds. suppl. Dashing, at 10d. ...	0	16	0
2 yds. suppl. Floor, at 3s. ...	0	6	0
No. 1, Door, ...	1	5	0
Item, Painting, etc. ...	0	5	0

Amount for Out Office £11 14 3

	£	s.	d.
Amount for Cottage B ...	120	2	4
Amount for Out Office ...	11	14	3

Total £131 16 7

Cottage C. This cottage was a two-floor design—it has not been illustrated.

	£	s.	d.
11½ yds. cube Excavation, at 9d. ...	0	8	8
11½ yds. cube Footings, at 10s. ...	5	15	0
73 yds. cube Walling, at 12s. ...	43	16	0
8 yds. suppl. Wall under 6 inches thick, at 3s. ...	1	4	0
23 ft. linl. Sills and Steps, at 2s. 6d. ...	2	17	6
6 squares Tiling and Roofing, at 60s. ...	18	0	0
2 qrs. 21 lbs. Lead, at 25s. ...	0	17	3
20½ yds. suppl. Concrete Floor of Living, at 3s. ...	3	1	6
10½ yds. suppl. Boarded Floor and Joists, ground floor, at 3s. ...	1	10	9
26 yds. suppl. Boarded Floor and Joists on upper floor, at 3s. 6d. ...	4	11	0
2 yds. suppl. Hearths ...	0	10	0
23 ft. suppl. External Door and Frame, at 2s. ...	2	6	0
47 ft. suppl. Internal Door and Frame, at 1s. 4d. ...	3	2	8
82 ft. suppl. Windows, at 1s. 10d. ...	7	10	4
Item, Stairs and Enclosure ...	7	0	0
153 yds. suppl. Internal Plastering, at 10d. ...	6	7	6
117 yds. suppl. Dashing, at 10d. ...	4	17	6
Item, Painting ...	3	10	0
No. 4 Grates and Mantels ...	3	15	0
Item, Eaves Gutter and Downpipe ...	2	10	0
77 yds. suppl. Lath, Plaster, Float, and Set Ceiling, at 1s. 6d. ...	5	15	6

ITEMS NOT INCLUDED ABOVE.

62 ft. linl. Barge Board, etc., at 8d. ...	2	1	4
43 ft. linl. Purlin, at 6d. ...	1	1	6
73 ft. linl. Cement Reveals to Windows and Doors, at 3d. ...	0	18	3
Item, Shelves ...	0	5	0

Amount for Cottage £133 12 8

OUT OFFICE.

	£	s.	d.
3 yds. cube Excavation, at 9d. ...	0	2	3
3 yds. cube Foundation, at 10s. ...	1	10	0
9 yds. cube Walling, at 12s. ...	5	8	0
14 yds. suppl. Roofing, Galvanised Iron, at 4s. ...	2	4	0
19½ yds. suppl. Dashing, at 10d. ...	0	16	0
2 yds. suppl. Floor, at 3s. ...	0	6	0
No. 1. Door ...	1	5	0
Item, Painting, etc. ...	0	5	0

Amount for Out Office £11 16 3

	£	s.	d.
Amount for Cottage C ...	133	12	3
Amount for Out Office ...	11	16	3

Total £145 8 6

15 Ely Place,
Dublin, 25th March, 1907.

INSTITUTE CONDITIONS OF CONTRACT.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—Since reading the many articles in your columns on the subject of Conditions of Contract, containing an arbitration clause, and in particular "M.R.I.A.I.'s" two letters, I have, in my own practice, abandoned the use of Institute conditions, and have substituted conditions of my own, constituting me sole and final judge in all matters in dispute between builder and client, or builder and architect. Four Dublin builders called to my office to sign their contracts during the past week. Every one of them signed the conditions without so much as glancing at them. Action could not speak more loudly in indicating that, given only an architect is honest, the average Dublin builder does not greatly trouble what the conditions of contract are put before him to sign. One builder, who was invited specially to peruse the conditions before signing, declared that he had no desire to do so, and there and then signed. Such men are not fools—simply average contractors. Hence, to use a vulgar expression, is displayed the transparent humbug of the Dublin masters builders' attitude regarding the new conditions of contract.—Yours, etc.,

"ANOTHER M.R.I.A.I."

ENGINEERING NEWS.

Ballycastle.—The Ballycastle Rural District Council have accepted the tender of Messrs. Fleming Bros., Portrush, for the construction of the Cushendall sewerage works. The amount of tender is £690.

Claremorris.—A public inquiry has been ordered by the Local Government Board into the question of a water supply for Claremorris.

Callan.—The Callan Town Commissioners require estimates as to the probable cost of lighting the town with electricity. The matter is to be considered further on June 3rd.

Castlewella.—The Downpatrick Urban Council contemplate embarking on a scheme for the equipping of the town of Castlewella with a new water supply, and an L.G.B. inquiry has been held.

Donegal.—Mr. Francis Kearney has been appointed an assistant surveyor for Donegal at a salary of £110 per annum.

Dublin.—Messrs. Egan and Tatlow, 20 Fleet-street, Dublin, have the following contracts at present on hands or just completed:—Kevin-street, Technical Schools, 360 lights; Woodbrook, Bray, for Mr. Stanley Cochrane, 350 lights; Royal Victoria Hotel, Killarney, 350 lights; G.S. and W. Railway Co.'s new hotel, Killarney, 250 lights; Eason and Sons, Abbey-street, new premises, 300 lights, and 2, 3 phase electric elevators; Alliance Assurance Co., Nassau-street, electric elevator; new Fire Brigade Station, Brunswick-street, equipment of station with fire signalling switchboard and apparatus; Waverley Hotel, Sackville-st., 100 lights; new generating station, Port and Docks Board, cables to motors, switchboard, and lighting of generating station; Rotunda Hospital, nurses' quarters, 200 lights; Messrs. Garrett and Co., Thomas-street, electric elevator; New Assembly Hall, Killarney, 200 lights; Tralee Motor Garage, Tralee, 50 lights.

The Pembroke Urban District Council are open until noon, May 4th, to receive tenders for the following electrical plant:—High speed reciprocating engine, direct current dynamos, switchboard and instruments, accumulators, tubular boilers, arc lamps and gear, arc lamp posts.

Galway.—The County Council will, on May 15th, consider applications from persons competent to fill the position of surveyor for the eastern division of the county.

King's Co.—The King's County Council will, on Friday, 26th April, receive and consider applications for the appointment of assistant county surveyor at a salary of £80 per year, to include travelling expenses.

Mayo.—On Friday the death took place at Roundfort, Co. Mayo, of Mr. Murtagh Farragher, for many years one of the assistant county surveyors for Mayo.

Youghal.—At a meeting of the Urban Council, the Clerk read a letter from Mr. Wm. Ross, president of the Institute C.E.I., naming the following as two engineers, having the desired experience in waterworks—Messrs. W. K. Parry, B.E., M.I.C.E., Dublin, and Francis Bergin, B.E., M.I.C.E., Kildare. After some discussion, Dr. Murphy's proposition was passed, the chairman dissenting, and the clerk was directed to write to Messrs. Parry and Bergin, asking for their terms.

The Urban District Council of Youghal will, on 2nd May, receive applications from competent persons for the position of Town and Urban District Surveyor, at a salary of £100 per year as town surveyor, and, in addition, £20 per year from the Youghal Harbour Commissioners as harbour engineer.

THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

The usual monthly Council meeting of the Royal Institute of the Architects of Ireland was held at 20 Lincoln Place, Dublin, on the 8th inst. In the unavoidable absence of the President, Mr. A. E. Murray was moved to the chair. There were also present:—Messrs. R. C. Orpen, J. Holloway, C. A. Owen, G. P. Sheridan, F. G. Hicks, F. Batchelor, and J. H. Webb, hon. sec.

Letters from members of the Institute with reference to the action of local Councils in connection with the Labourers' Acts were before the Council. The hon. sec. was instructed to write giving an account of the action taken by the Council in the matter. The hon. sec. was instructed to write to the secretary of the Unemployed Committee of the Stonecutters' Union with reference to a communication received from the committee regretting that any differences with regard to conditions of contract should interfere with the execution of building work, and to express a hope that any misunderstandings will be speedily removed. It was decided to call a special Council meeting to consider the education scheme drawn up by the Architectural Association of Ireland.

Amongst the several attractive stands in the Machinery Paddock at the Spring Show of the Royal Dublin Society, that of Messrs. Tuck and Co., Ltd., Lower Abbey Street, Dublin, was prominent. They had a good display of articles of their own manufacture, such as engine, pump and hydraulic packings, the well-known "Tucksona" belts and "Tuck-solin" oils and lubricants. And in view of the interest generally taken in Irish-manufactured goods, it is pleasing to note that Messrs. Tuck have been granted the right to use the new Irish Trade Mark in connection with their asbestos jointing rings and asbestos tape. They showed, also, one of Shearer's latest threshing mills, specially adapted for estate owners and private users, a well-designed and finished petrol engine, several saw benches and other wood-working machines, and an immense assortment of engineers' and smiths' tools, creamery requisites, shafting, pulleys, and other mill-gearing. We also noticed what is apparently an entirely new form of wire fencing, known as the "Lattice Girder" type, which seems to possess great advantages, and should command a ready sale. Altogether a very attractive exhibit, and one that proved of considerable interest to estate owners, creamery managers, saw mill proprietors, engineers, millwrights and smiths, threshing-machine owners, etc.

CONTRACTS.**CLONMEL DISTRICT LUNATIC ASYLUM.****TO BUILDERS.**

Tenders are invited by the Joint Committee of Management for the Erection of

TWO CONSUMPTIVE HOSPITALS

at the above Asylum, where Plans, Specifications, and Conditions of Contract can be seen between the hours of 10 o'clock a.m. to 4 o'clock p.m. daily. Duplicates can also be seen at the office of J. F. Fuller, Esq., Architect, 179 Great Brunswick Street, Dublin.

Bills of Quantities can be had on payment of £2 2s., which will be returned on receipt of a bona fide tender.

Tenders to be lodged with the Resident Medical Superintendent, Asylum, on or before the 1st of May, 1907.

The lowest or any Tender not necessarily accepted.

Contractor to be prepared to enter into a Bond with sureties, to the satisfaction of the Joint Committee of Management.

By Order,

M. M'LAUGHLIN, Clerk.

Boardroom, 2nd April, 1907.

STEAM WAGGON.

"Thornycroft" Steam Waggon; 3 ton; excellent condition; subject to any expert examination; lot spare parts; must be disposed of immediately.—Peare's Motor Works, Waterford.

**IMPORTS.
Port of Dublin.**

April 3rd—Per New Design, from Bridgewater, 140 tons bricks, T. Archer.

April 4th—Per Velinheli, from Port Dinorwic, 100 tons slates, W. and L. Crowe, Ltd.

April 8th—Per Elidir, from Newcastle, 400 tons cement, Betson and Co. Per Lady Hudson-Kinahan, from London, 1,800 sacks cement, T. Dockrell, Sons and Co., Ltd.; 200 sacks whiting. Per Lady Wolseley, from London, 700 sacks cement, T. Archer.

April 10th—Per Bangor, from Baltimore, 486 pcs. oak lumber, 75 tons roofing slates, to order. Per Result, from Connah's Quay, 181 tons fireclay goods, T. and C. Martin, Ltd.

April 11th—Per Winga, from Goteborg, 1,800 bdles. laths, 41,941 pcs. planed boards, 1,995 pcs. deals and battens, 200 poles, to order.

April 12th—Per Spencer, from Connah's Quay, 109 tons bricks, Brooks, Thomas and Co., Ltd.; 20 tons bricks, E. H. Tickell.

April 13th—Per Albion, from Gloucester, 150 tons bricks, Alliance Gas Co.

April 15th—Per Aladdin, from Ghent, 10,235 bags cement, 11 cases limestone, to order.

April 16th—Per Barbro, from Laurvig, 122,475 pcs. planed

boards, 12,982 pcs. setlgs., W. and L. Crowe, Ltd. Per Irishman, from Creetown, 220 tons granite, J. McDermott.

BOOKS RECEIVED.

The Principles of Architectural Design. By Percy L. Marks, Architect. Author of *The Principles of Planning*, etc. With 165 full-page and other text illustrations. London: Swan, Sonnenschein and Co., Ltd., 25 High St., Bloomsbury, 1907.

Cassell's Carpentry and Joinery. Comprising notes on materials, processes, principles, and practice, including about 1,800 engravings and twelve plates. Edited by Paul N. Hasluck, Editor of *Building World*, etc. Cassell and Company, Ltd. London, Paris, New York, and Melbourne, MCMVII.

Public Libraries. A treatise on their design, construction and fittings. With a chapter on the Principles of Planning, and a Summary of the Law. By Amian L. Champneys, B.A., Architect. With many illustrations of modern examples and fittings from photographs and drawings. London: B. T. Batsford, 94 High Holborn, 1907.

The Studio Year Book of Decorative Art. A guide to the artistic construction, decoration, and furnishing of the house. 1907. Published at the Office of the *Studio*, 44 Leicester Square, London. Price 5s. net.

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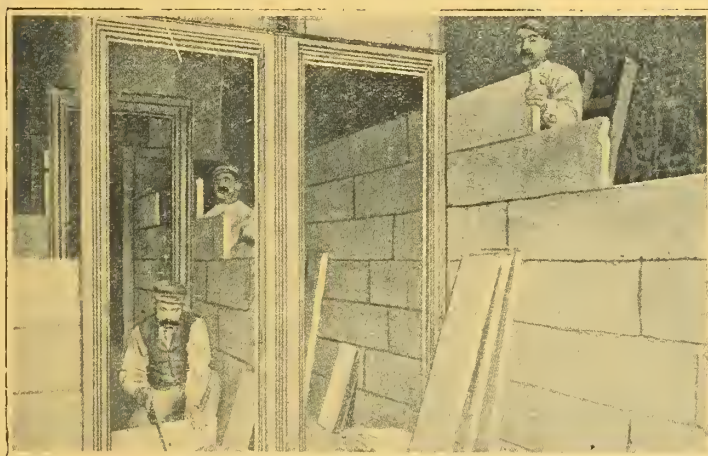
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COOKING APPARATUS. W. SUMMERSCALES and SONS, LTD., Phoenix Foundry, Keighley. Representatives in Ireland:— CRAIG & PATON, 2 and 4 Great Victoria Street, Belfast.	LITHOFALT ASPHALTE PAVING. THE LIMMER ASPHALTE PAVING CO., LTD., Works: Magheramorne, Co. Antrim.	SQUARE CUT WOOD WORK, NEWELS, BALUSTERS, Etc. JONES & LEACH, Newtown, N. Wales, 20 Victoria Street, S.W.
CHIMNEY & DRAIN CLEANING MACHINE. H. HART, 29 Settles Street, Commercial Road, London, E.	LIGHTNING CONDUCTORS. W. J. FURSE & CO., Traffic Street, Nottingham. Representative in Ireland:— John McNeill, Ocean Buildings, Belfast.	STAIR TREADS. THE SAFETY TREAD SYNDICATE, LD., 15, Barbican, London, E.C. Telegrams—"Unslipping."
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ASPHALTE. THE INTERNATIONAL ASPHALTE CO., Chiswell House, Finsbury Pavement, London, E.C.	ROOF GLAZING. MELLOWES & CO., LTD., Corporation Street, Sheffield.	<p>Read the "IRISH CYCLIST." and "MOTOR NEWS."</p>
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No. 9—Vol. XLIX.

HEAD OFFICE

MAY 4, 1907.

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DUBLIN.

Price 1d

TOPICAL TOUCHES.

The Belfast Corporation electric light undertaking shows a net profit of £11,478 13s. 6d. for the year ended 31st March last. All of the works connected therewith were carried out by local engineers.

On Saturday next Dublin will be *en fete* for the opening of the International Exhibition. Although work was backward when we saw the place the other day, we were reliably assured all would be ready by the opening day.

A most extraordinary state of affairs has arisen in connection with an action taken by Lord Barrymore against the Tipperary Urban District Council. Last July Lord Barrymore obtained, by consent, an injunction against the Council to prohibit them from creating a nuisance by polluting the River Ard by sewage matter, and specifying that, on defendants undertaking to keep the sewage tanks, filter beds, sluices, etc., in good order and repair, and provided that the defendants paid the costs awarded to plaintiff within six months, no proceedings be taken until after that period on foot of the injunction. Since the date of the consent referred to the Council had failed to take any effective step.

Affidavits were filed on behalf of Lord Barrymore, and the other day the matter came before Mr. Justice Barton. There being no appearance on behalf of the defendants, the judge made an order to grant a writ of sequestration "to sequester the goods, chattels, and personal estate, and the rents, issues, and profits of the real estate of the defendants, the Urban District Council of Tipperary, for contempt of court in having wilfully disobeyed an order of the court of 2nd July, 1906." As the issue of such a writ is of so unusual and startling a nature, the judge put a stay of two months on it. The extraordinary feature is that the Council have allowed the matter to go by default. It can hardly be that they will allow their property to be sequestered.

In our last issue we published a letter which had been addressed to the Local Government Board by a number of architects practising in Dublin relative to the appointment of engineers under the Labourers' Acts. A reply has been received from the Board stating "that in no case have the Board permitted the employment of a person who failed to satisfy them either by the production of certificates or testimonials, or by examination, that he possessed sufficient knowledge and experience for such employment." In an unofficial letter, written on the same subject, and addressed to a well-known M.P. who has interested himself in the matter, the Chief Secretary states "that the Local Government Board fully realise the importance of securing qualified men for discharging the duties of architect and engineer for the purpose of the Labourers' Act." The Chief Secretary goes on to say: "I can assure you that there will be no laxity on the part of the Local Government Board in carrying out the duty imposed on them by this section of the Labourers' Act."

This, then, is satisfactory, so far as it goes, but it is at the same time regrettable that the Local Government Board should be turned into a machinery for granting diplomas as architects to persons who apparently lacked both "knowledge and experience." The other day at Tuam the L.G.B. offered to send down an inspector to examine two gentlemen whose appointment the Board had previously refused to sanction.

At a recent meeting of the Glasgow Institute of Architects, the president referred to the liability of architects under the Workmen's Compensation Act, 1906, in the case of accidents happening to clerks of works, architectural pupils, etc., and stated that the Royal Institute had obtained an opinion from the legal advisers on the subject; but as the opinion was not final, the matter had been again referred to the solicitors.

Lately, before the Sheffield Society of Architects, Messrs. A. W. S. Cross, M.A., F.R.I.B.A., and G. Hubbard, F.R.I.B.A., read short Papers dealing with "The Revision of the Charter of the Royal Institute of British Architects." Their Papers were followed by a discussion in which the feeling was expressed that these proposals, the result of compromise, left the main subject, *i.e.*, compulsory registration of architects, much in the same position as before, and that the supporters of this measure should not relax their efforts until their object was attained.

The appeal of Messrs. Pearson against the decision of the Irish High Court of Appeal came before the House of Lords last week, and was fully argued. It will be remembered that this action was taken by Messrs. Pearson against the Dublin Corporation for misrepresentation in connection with the plans for the Pigeon House sewage treatment contract, a certain wall being alleged to be represented as going down below low water mark sufficiently to be utilised as a coffer dam, whereas it did not exist. The action was originally tried before the Lord Chief Baron, who stopped the hearing of the case, and gave a direction in favour of the defendants. The Court of Appeal upheld this view. The judgment of the House of Lords has not yet been given.

The Corporation expressly refrained from guaranteeing the accuracy of the plans, but, on the other hand, they distinctly specified a certain course of procedure in connection with the use of the old wall as a coffer dam, an essential feature of which was, naturally, the existence of the wall proposed to be utilised—if the wall did not exist below water, obviously it could not be utilised! The point which seems to arise in this case is: when a specific course is prescribed, and one of the indispensable factors is missing, can a contractor be compelled to substitute a totally different and more costly method of working?

The answer depends upon the legal construction of the documents, and the interpretation to be placed upon the wording of the safeguarding clauses.

Ordinarily it would seem that if a man undertakes, and without any reservation, to build upon an existing wall, and it afterwards happens that the old portion lacks sufficient foundation, we fancy the contractor could be compelled to make it right; but if he is told to take a wall below water and make out of it a coffer dam, and the wall doesn't exist at all, it then becomes a distinctly perplexing problem, to solve which demands some ingenuity. Under which of these two headings the Corporation case falls it is premature to say.

Mr. Campbell, K.C., for the plaintiff, it is true, made vigorous charges of deliberate and intentional dishonesty against the Corporation engineers, but not a particle of evidence has ever been produced to justify such reckless statements.

FIFTEEN YEARS OF THE INCANDESCENT INDUSTRY.

If we consider the development of the incandescent gas mantle industry, which came into existence fifteen



Knitting Department.

years ago, the indisputable fact is shown that this industry has developed within an extraordinary short time to one of enormous magnitude, which, not so long ago, no one would have dreamt of.

Fifteen years ago the incandescent mantle was an interesting chemical-technical speciality. The article was brought upon the market in a very imperfect condition, and at a price that would only allow the very well-to-do to take advantage of the luxury.

The few manufacturers who attempted to compete with the first holders of the patent, as far as their small knowledge of this line and their limited means allowed, found themselves threatened in their very existence by long and difficult legal proceedings, and were unable, in spite of their efforts to introduce the article to a larger public, to show any distinct success.

For the last ten years incandescent gas mantles have been manufactured on a large scale, especially in Germany; but what a difference there is between those "workshops" which began ten years ago and the gigantic establishments which manufacture this article now wanted by everybody! Formerly there were only small makers possessing some £10 or £20 working capital, making use of the most primitive apparatus, and their whole staff often consisting of only one factory girl, who had to learn and practice all the different intricacies of the manufacture of the incandescent gas mantle.

To-day a factory that is in the front rank of this industry has of a necessity to trade with a working capital amounting to many hundreds of thousands of pounds, as in consequence of acute competition the profit on this article has been reduced to such an extent that only the greatest financial support, the best machines, and the most careful



Chemical Laundry.

management in working, can secure success. Special machinery, which has been carefully thought out and constructed, is giving work to hundreds of factory hands, who

are divided into sections, each section completing the process which it is subjected to in that department, until the last, when it is finished.

One of the largest establishments of this kind, perhaps the largest in the world, is the United Chemical Works, Ltd., London, E.C., which employs during the season more than 1,000 hands, and can make 200,000 mantles in one single day. If 300 working days are reckoned per year this would represent the enormous production of 60,000,000 incandescent gas mantles.

Enormous quantities are despatched daily to all parts of the globe, and in the remotest parts of this planet wherever incandescent mantles for gas, spirit, petroleum, benzine, etc., can be utilised, the products of this company, and first of all, the well-known "Ino" incandescent gas mantles, can be seen to spread their brilliant light.

The company has come into existence by the amalgamation of seven factories, each one of which was already one of the largest in this particular trade before this arrangement took place. The colossal extent of the factory can be imagined by this combination, which a single firm could never have reached in the short time the incandescent gas mantle industry has been in existence.

In order to show how the "Ino" incandescent mantles are manufactured, we have reproduced for this article some photographs which show the various processes through which a mantle has to pass before it is ready for the market.

Only the very best Ramie silk is used for the knitting of the stockings; the strength and the special qualities of the yarn used are the outcome of many years' studies.

By the assistance of several hundred special circular-knitting machines the yarn is made into endless hose.



Where the mantles are impregnated with rare earths.

Further, the way in which the threads are knitted into the most varied webs is the result of long studies protected by numerous patents.

Considering the great quantities required by this company, they are able to have this yarn made specially for themselves exactly in accordance with their experiments.

Next comes the chemical cleaning of these weavings, one of the most important parts of the manufacture. As regards the United Chemical Works, Ltd., they make use of a secret process known only to a very few trusted persons, and which, owing to very careful control of the laboratory staff, assures absolute cleanliness of raw-stockings.

The washed hose, cut into certain lengths as required, and sewn, make up the so-called raw-stockings, which, for the time being, represent still a simple product of the textile industry.

Now the raw-stockings are impregnated with rare earth; although every expert in this trade knows that thorium and cerium are the parts giving the lighting power, yet there is a great difference in the various manufactures. The "Ino" incandescent gas mantles are impregnated according to a method that is kept a strict secret, and which gives the mantle the highest illuminating power and greatest durability attainable—a secret for which many an interested person would be glad to offer a fortune—if it were for sale.

Our photograph shows the arrangement of such an impregnating room.

After the stockings are dried they are provided with an asbestos hook at the head, by which the mantles are fixed on the fork of the burners.



Drying Room.

The methods by which the "Ino" incandescent gas mantles are burned off is likewise protected by a large number of patents. There is used almost exclusively special apparatus which is cleverly constructed.

First the stocking is lighted in the burning-off machine where the yarn is burnt, leaving the thorium oxide in the shape of the original stocking as an ash-web, lighting brilliantly.

On a second flame, namely—the pressure-gas-flame, the stocking receives its proper shape, and thus is ready for use. Also this process is done through a burning-off machine, which is constructed for the purpose in an extraordinary neat manner, assuring the greatest economy in the manufacture and best quality of the products.

As a matter of course, the mantle could not be transported in this condition, consisting as it does only of ash. For the purpose of transport it is necessary to make the mantles durable, and, therefore, a thin layer of easily burnable collodion is put on them. This fluid (to harden the mantles) consist mainly of liquified gun-cotton.

What perfection the technique has reached in this respect is proved by the fact that the "Ino" mantles can stand the transport to South America, Java, Cape Town, New York, Iceland, etc., without being damaged.

Now follows the straight-cutting, the careful testing, sorting and packing, into the well-known boxes. Only after this careful examination is the "Ino" mantle allowed to start on its journey into foreign lands, as a reliable, shining light-giver.

The last photograph shows the distilling plant for providing the large quantities of distilled water used in the factories.

It is astonishing at what comparatively low prices incandescent gas mantles are sold nowadays. In passing through such a huge establishment it is seen how much labour is necessary before a mantle is finished, and through how many hands each piece has to pass before it is completed, is found perfect and ready for despatch.

The United Chemical Company, Ltd., are showing all their products at the Irish International Exhibition, where they have secured a large space. Readers will find a visit well worth while.



The Burning-off Machines.

THE DUBLIN BRICK AND TILE CO., LTD., MOUNT ARGUS, DUBLIN.

We recently visited the brick works of the above firm at Mount Argus, and were conducted over the works by the manager, Mr. Cooper, and the secretary, Mr. Perkins.

The company's property at Mount Argus is about fifty acres in extent, about four acres of which are covered by the plant, drying rooms, and kilns. Originally established in the year 1883, the works were acquired by the present company about 18 years ago, and since that time have been worked and developed in a manner that reflects the greatest credit on the management. This is evidenced by the fact that although it has been proved that the clay will make as good a wire-cut or pressed brick as probably any in the market, owing to the existence of large quantities of gravel and stone (which, in the first instance, necessitates hand picking of the material to remove the larger stones), the manufacture of bricks from the available material would seem to the ordinary observer to present insurmountable difficulties.

At present there are installed in the works seven semi-dry brick presses, each having a capacity of 5,000 bricks per day. The clay is drawn in large tipping waggons by steel ropes to the floor of the grinding house, it is passed through two grinding pans elevated and passed through screens which are arranged on the piano wire system; thence it passes to the tempering pans, and afterwards it is again raised by an elevator to the press hoppers. After being moulded in the presses the bricks are at once conveyed to the kilns.

The kilns include one Hoffman continuous kiln, which is capable of burning 18,000 bricks in 24 hours. There are also four side-fire kilns, and at present the company are



Plant for Distilling Water.

erecting another large Hoffman kiln, similar to the one already referred to.

The wire-cut brick department is fitted with the usual crushing rollers and grinding pans, also two wire-cutting machines. The clay from which the wire-cut bricks are made is carefully washed in rotary machines to remove lime-stone, and afterwards it is incorporated with a proportion of crushed shale obtained from a quarry on the company's property, and which is crushed and sifted by special plant.

The drying rooms in connection with the wire-cut brick department are entirely heated by waste gases, which are exhausted from the kilns by means of a fan, and are driven through brick conduits into the drying rooms. The exhaust steam from engine is also utilised for the same purpose. As the clay used for making this class of brick contains a large amount of gravel and stone, a special arrangement originally invented by the manager (Mr. Cooper) has been adopted in order to utilise the residual from the rotary washing mills. After all clay has been removed from the mills in a semi-liquid state the remaining material is removed and passed through a washing and sorting machine, referred to above, which consists of an arrangement of cylindrical screens fixed inside each other, a rotary motion being given to the apparatus by outside gearing. The material is fed into this machine, is washed by a stream of water constantly passing through, and emerges through four different shutes, each of which delivers a different grading, varying from fine, sharp sand to large stone suitable for road making or other purposes, the intermediate materials being a small clean gravel for pathways, and small stone suitable for concrete work.

The power-plant, which totals about 340 i.h.p., includes one 140 i.h.p. horizontal type of engine built by Messrs. Robey, of Lincoln, two single 70 i.h.p. engines, one 60

i.h.p. engine, and one small engine used in connection with the gravel and stone washing and sorting apparatus.

Steam is supplied by one 30 feet by 8 feet Lancashire boiler built by Messrs. Tinker, Shenton and Co., Ltd., of Hyde, the working pressure being 120 lbs. An economiser (Lowcocks) is fitted in conjunction with this boiler. There are also two small boilers, one Lancashire type 21 feet by 6½ feet and one Cornish type 19 feet by 5½ feet, as auxiliary or stand-by boilers.

It should be mentioned that all pressed bricks from the kilns when cooled are thoroughly saturated with water, which, owing to the peculiarity of the material, creates a hardening process in addition to the burning.

This operation is carried out by means of a concrete tank supplied continuously with running water, and fitted at the bottom with rails. The bricks being loaded on to small trucks of steel frame work and fitted with four flanged wheels for working on the rails, and also two wheels fitted in the centre of larger diameter for use when the truck is not on the rails. The trucks are run into the tank, and allowed to remain under water for about 30 minutes. The works are also equipped with a mechanic's workshop for carrying out the necessary repairs to the machinery.

At present the total output capacity of the works is about 170,000 bricks per week, and when the new kiln, in the construction of which the company are at present engaged, is completed, the capacity will be increased to about 220,000 bricks per week.

It is interesting to note that the management have lately been turning their attention to the manufacture of buff tiles and other building specialities, and we understand that some of their work will be shown at the Irish International Exhibition.

AN INTERESTING DESIGN.

We publish on this page a view of shops and offices recently erected in King Street, Cork, from the design of Mr. Hugh W. Flanagan, B.E., B.A., 2 South Mall, Cork.

The site, which has for many years lain idle, is triangular, and lying between two thoroughfares (Summer Hill and



King Street) of different gradients, it presents much opportunity for ingenuity of design. The architect has succeeded in planning a building with four shops (one of which is entered from the hill at rear), two of which have basements. The first and second floors contain offices, over which is a flat roof, access to which is through the turret.

The building is faced throughout with bricks made by the Youghal and Monard Brick Co., Ltd., who have also supplied the moulded bricks for the cornice, window-jambs, etc. Bands of concrete, fixed over with Portland cement, lime putty, and sea-sand in equal proportions, run round the buildings through the heads and sill of the windows, and the whole forms a striking improvement in what promises to be one of the leading streets of Cork.

The whole of the work, including shop fittings, has been carried out by William O'Connell and Co., Ltd., 19 Hanover Street, Cork.

CORRESPONDENCE.

ARKLOW HARBOUR WORKS. Engineers Position.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—As you have given prominence to this question, I think the following will be of interest to those of your readers who are at all concerned with the status of civil engineers in Ireland.

Having been unable to obtain any satisfactory replies to any of my former letters, I wrote the following to the Arklow Harbour Commissioners:—

22 South Frederick Street,
Dublin, 21st March, 1907.

Enclos.—Copy of article in IRISH BUILDER, 9th March, 1907.
Copy of letter in *Independent*, 21st March, 1907.
Copy of letter to Under-Secretary, 13th February, 1907.

ARKLOW HARBOUR.

GENTLEMEN,—With reference to my appointment as Engineer to your Harbour Board, I shall be glad to hear what work you wish me to do in connection with the Harbour improvements.

As you are aware, I have carried out your wishes, and have used every effort to secure the extension of the Harbour in accordance with the instructions received at your meetings. Your advertisement was quite explicit in December, 1905; your instructions to me in April, 1906, were equally explicit, and your approval of my plans at your meeting of October 24th, left no room for doubt that you quite approved of what I had done.

The fact that you have now changed your minds does not put me in the wrong in any way, and, as I said in my letter to you of the 21st January, you should, in common justice, either give me the work to do or else compensate me for my loss of time, disappointment, etc.

A perusal of the accompanying letter, in which I offer to accept the decision of an arbitrator, will show you that I, at least, am anxious to do what is fair, and avoid unpleasant complications which need not arise.

I do not agree with you that my visits to Arklow were "pleasure excursions"; they have always been pleasant visits, but they always had reference to the business in hand, viz., extension of the South Breakwater.

The lengthy correspondence in which I have been involved for over a year, together with numerous interviews, etc., certainly were not particularly pleasant or amusing, though they have been instructive.

May I ask you for an early reply to this letter?—I remain, gentlemen, your obedient servant,

(Signed) R. G. ALLANSON-WINN,

Engineer to Harbour Commissioners, Arklow.

To the Secretary,
Arklow Harbour Commissioners,
Arklow.

This letter was acknowledged on a post-card dated 22nd March, and it appears that the Commissioners then approached the Government and asked for advice as to what they should do. The Government wrote on April 6th, giving the opinion of their engineering adviser, and offering to sanction a further payment of £277 10s. 0d. if the Commissioners would agree, and would "submit Mr. Allanson-Winn's acceptance of the payment in full discharge."

The Commissioners then held a meeting on Tuesday, April 9th, and, without any reference to me, and without my knowledge, applied to the Government for £150, which they settled, at that meeting, was the proper sum for me to be paid. On the 12th April they wrote to me acquainting me with the result of their meeting on the 9th.

On seeing the account of the meeting in the newspapers of the 13th, I wrote the following letter on the 15th:—

22 South Frederick Street,
Dublin, 15th April, 1907.

ARKLOW HARBOUR.

GENTLEMEN,—In reply to your letter of the 12th, allow me to say that you are apparently overlooking many of the circumstances connected with my appointment as your engineer, and, in case this is so, I venture to send you the enclosed copies of letters and articles in which the situation is clearly outlined.

I cannot agree to the sum you name.

You have all along recognised that I have been put to a great deal of trouble, and have been much disappointed through no fault of my own, and you have very properly placed the matter before the Castle authorities for advice.

The Castle authorities have advised you that the payment to me of a further sum of £277 10s. will be sanctioned in addition to the £50 already paid, and I beg now to inform

you that I will accept this sum in full discharge of all claims on you with respect to the Harbour extension work.

On receipt of cheque for £277 10s. I will send in my resignation.—I remain, gentlemen, your obedient servant,

R. G. ALLANSON-WINN,

Member of Council, Inst.C.E.I., Engineer to the Arklow Harbour Commissioners.

To the Secretary,
Arklow Harbour Commissioners,
Arklow.

This letter, in which were enclosed several articles and letters bearing upon the subject, crossed one from the Arklow Harbour Commissioners of the same date:—

[COPY.]

"Arklow Harbour Office,
"April 15th, 1907.

"R. G. Allanson-Winn, Esq.

"SIR,—I enclose you an order for £150, which I received from the Under-Secretary's Office, in full discharge of your claim for work done in connection with the Harbour Works. Please acknowledge with a receipt and oblige.—Yours faithfully,

"(Signed) J. DOYLE."

So it will be seen that the order for £150 had been obtained from the Castle without any authority from me. On the 16th I returned the order for £150 in the following letter:—

[COPY.]

22 South Frederick Street,
Dublin, 16th April, 1907.

GENTLEMEN,—I am rather surprised that you should have taken it for granted that I would accept £150. Surely you should have waited for my acceptance or refusal before applying for the money?

As I explained to you in my letter yesterday, I cannot accept this amount, now that the Government has considered the matter, and agreed to sanction £277 10s. Od.

Will you permit me to point out that the Government Advising Engineer is, possibly a better judge of what is fair and equitable in all the circumstances than the member of your Board who suggested the smaller sum.

Herewith I beg to return the order for £150, with the request that you will kindly substitute one for £277 10s.—Your obedient servant,

(Signed) R. G. ALLANSON-WINN,

Engineer to the Arklow Harbour Commissioners.
To the Secretary,
Arklow Harbour Commissioners,
Arklow.

Were it not for my respect for the members of the Board, I should feel almost inclined to think that the Harbour Commissioners were making an effort to "rush" me into accepting the smaller sum.

It is not easy to understand on what principle they appraise the value of my services or the extent of the losses I sustain through their own change of mind. The case is hardly analogous to bargaining over the price of a table, chair, or Kerry cow at an auction. Intelligence and education are necessary in our profession, and the latter often costs a considerable amount of money before the engineer is sufficiently finished to be of service to his fellow-men. To give one example in my own practice. Many years ago the owner of some valuable plantations in the Far East consulted me as to a costly scheme he was about to embark on to safeguard this property. It so happened that my experience in the past enabled me to give him advice which brought about the desired results at less than a tenth of the proposed cost. I was not at work for more than one hour, and the five guineas fee charged did not represent the hour's work, but was part payment for years of thought and study in one special line. This five guineas saved my client a useless expenditure of over £5,000.

It is not easy in these days to secure berths in open competition, and some idea of the value to me of the Arklow job may be gathered when I say that had any brother engineer offered me £2,000 in cash down to hand over the work to him I would not have accepted it.

When I realised that the Arklow Harbour Commissioners were placed in a somewhat awkward position, I did all in my power to meet them fairly by offering:—

1. To do the work.
2. To accept 2½% and stand aside.
3. To submit to the decision of an arbitrator.

In your article of the 20th you mention 3% as the usual fee in architect's practice, and, of course, there are few professional men who, like myself, have families to feed and clothe, who would not prefer 3 to 2½%, but as there can be no doubt whatever as to the ability and fairness of Mr. Griffith, the Government Advising Engineer, I am quite content to abide by his decision and accept a further sum

of £277 10s. in full discharge, though I would far rather have to carry out the work on the chance and in the hope of gaining prestige, fresh knowledge, and probably future employment on similar works. People outside the profession hardly realise the value of the advertisement attached to the designing and carrying out of any important work. Such an advertisement is not chimerical or sentimental; it is an asset—part of the stock-in-trade, as it were—almost as valuable to a professional man as his University degree or his membership of a learned society.

It is this interference with future chances and probabilities that I most deplore, and it is the absence of ordinary courtesy and good feeling, shown in the methods adopted by certain representatives of the Department of Agriculture when depriving me of my work, that I most resent.

Whether it is that continuous association with bucolic affairs has blunted the fine edge of ordinary courtesy, or that work is so scarce in the Department that it was absolutely necessary to pounce on my small prize, I do not pretend to know. What I do know is that my treatment has been unusual, and, I think, unfair.

As I recently pointed out to the Government, if Irish consulting engineers, living in this country and spending their earnings here, are to be treated with such scant courtesy and want of fairness by Government Departments, it will be necessary for many of them to emigrate to other lands.

The power of a Department of State is, of course, greater than that of a private individual, but, in these days, the doctrine of "might is right" does not always obtain favour. At any rate, I hope that those of my brother engineers, in this country, who may be appointed to carry out specific work, will endeavour to secure themselves against the unwelcome surprise of a sudden deprivation.—Faithfully yours,

R. G. ALLANSON-WINN, M.Inst.C.E.I.,
Engineer to the Arklow Harbour Commissioners.
22 South Frederick Street,
Dublin, April 29th, 1907.

[We understand that since Mr. Winn wrote the above letter, the Arklow Harbour Commissioners have agreed to the payment of the larger sum. This, of course, is some consolation, and removes part of the grievance; but it will hardly alter the opinion which is very generally held respecting the action of the Board of Agriculture and the Engineers of the Congested Districts Board.—Ed. I.B.]

BELFAST QUANTITY SURVEYORS' SOCIETY.

The above society, at their last meeting, decided to reduce their fees for warehouse work from 1½ per cent. to 1 per cent. The altered scale of charges has, we understand, been approved of by the Ulster Society of Architects.

The British Steam Specialities, Ltd., of Fleet Street, Leicester, have just issued a sectional catalogue of wrought iron, malleable and cast pipe fittings, screwing machines, and pipe tools of all kinds. The book is admirably illustrated, printed on art paper, bound in a distinctive cover, and full of detailed information.

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CONTENTS.

	PAGE
Topical Touches	309
Fifteen Years of Incandescent Industry	310
The Dublin Brick and Tile Co., Ltd., Mount Argus, Dublin	313
An Interesting Design	314
Correspondence	314
LEADING ARTICLE:— The Exhibition	318
COMMENTS:— Irish Cement	321
Law	321
Building Contracts	322
Building News	324
Imports	326
Engineering Items	329
Ventilation of House Drains	330
The Intercepting Trap	330
Fires and their Prevention	333
Engineering News	334

THE EXHIBITION.

The Irish International Exhibition of 1907, the preliminaries of which have been before the public for some considerable time past, is now practically finished, and will be formally opened to the public on to-day (Saturday). While many matters have occurred to cause friction and much unfavourable comment, on several points of which we have remarked, these are now past, and we may hopefully look forward to an unqualified success for the exhibition.

Recently we had an opportunity of going through the exhibition. The site is an ideal one, spacious, and commanding views well calculated to make it an ideal resort. When we visited the buildings last week we were surprised to find the work so backward, although the main structures, with the exception of the French Pavilion, were finished, the stalls were not at all completed, and but a few exhibits were visible, or any signs of them. Nevertheless, we were reliably informed all would be in readiness for the 4th, the date fixed for the opening ceremony. The main entrance is from Ballsbridge. Access is given through a large detached hall, with a raised way to cross a laneway which intervenes. This large hall is, we understand, known as the Celtic Hall, and the most prominent position in its centre is a remarkably finely modelled figure of "Erin," by Messrs. Worthing and Trautner, of the Angle, Ranelagh, Dublin, sculptors and modellers. Very few other exhibits were visible. Regaining the open, the vista presents a very imposing aspect—the walks (still in an unfinished condition) and the pleasant green sward and budding flowers and foliage, with the beautiful background of the Dublin mountains, completing a very pretty picture. Many artisans and labourers were at work on the buildings and grounds. The French Pavilion is, however, particularly backward. The general scheme of planning centres in an octagon, domed, and with four radiating arms containing the large exhibition halls. The principal exhibits we noticed, as so far in position, were the railway carriages and engines, the saloon car of the Midland Railway of

Ireland being particularly finely finished, and exceptionally large and imposing in extent, rivalling any rolling stock on the English lines.

The Canadian Pavilion and the Palace Restaurant are prominent features of the exhibition, the latter, perhaps, being the most satisfactory structure in the exhibition. All the buildings are of corrugated iron; the main facades covered with fibrous plaster. Internally they are all very plain, but many interesting and clever forms of cheap and strong roofing construction and bracing are well worthy of study and highly creditable to the contractors. Some extraordinary statements have for some time past been current in the city as to the enormous outlay on the building structures comprising the exhibition, but these rumours may safely be dismissed as gross exaggerations, as the buildings are all of plain and simple construction, and, we have no doubt, are being erected economically at modest cost. At the same time we cannot help regretting, once again, that the architectural design was not left in the hands of an architect and an engineer, as originally settled, inasmuch as the buildings, although highly creditable from a constructional and economical point of view, leave much to be desired from an æsthetic standpoint, and betray the want of the architect's guiding hand in the details, and the want of breadth and unity of conceptions. It is one of those matters in which the foreigner shines. The main entrance from Ballsbridge, for instance, is utterly unworthy of its position as the chief entry into a great Irish exhibition in the metropolis of Dublin. Needless to say, had the matter of design been left in the hands of the original distinguished architect, or had the Committee appointed his successor as responsible architect rather than as consultant (who, of course, cannot be blamed for what has occurred), something far different would have been presented to the citizens, and the foreign visitors, as a first impression of the great International Exhibition. The great machinery hall, of imposing length, contains the huge engines, dynamos, and switch board, generating and controlling the lighting and power of the entire premises. The entire of the electrical contract was in the hands of an Irish firm, Messrs. Coates, of Belfast, who have carried out their contract splendidly, so far as can be seen at present. The works have been under the direct control of the managing director of the firm, Mr. Dashwood, who may be warmly congratulated upon the successful conclusion of the first stage of a most onerous and responsible task, open to much criticism. The electrical work was carried out under the supervision and control of the resident and consulting electrical engineer to the exhibition, Mr. George Marshall Harris, M.I.C.E.I., who has been indefatigable literally night and day in superintending and pressing forward this important section of the work, which was of an exceptionally difficult nature, owing to the circumstance of its having to be entirely carried on in structures in course of erection, and in the midst of an army of other workmen engaged on the general construction.

Amongst the matters of notable interest will be the historical and art sections, the former controlled by a committee under the chairmanship of Colonel Arthur H. Courtenay, C.B., D.L., who has worked hard for the success of the exhibition in general, and of the historic section in particular. The collection will comprise unique specimens of work of all kinds and of historic value. The section of Art and Archaeology was first under the control of Sir Thomas Drew, I.L.D., and subsequently of Sir Walter Armstrong, and it is said, will be the finest art collection ever assembled in Ireland. It will include some drawings illustrative of contemporary Irish Architecture.

With the lawns in good order and the flowers in bloom,

the grounds should present a most attractive appearance, especially at night, when illuminated by the myriads of electric fairy lamps outlining the buildings, as is part of the electrical scheme. The exhibition buildings have been the subject of much exaggerated and fulsome praise upon the part of some of the Dublin daily journals, so exaggerated as to be ludicrous. One such declaration describes the buildings as a "Dreamland of Fairy Palaces!" Such criticism serves no purpose.

The conduct of the exhibition management has been the subject of a good deal of adverse and almost continuous criticism, but no useful purposes is now to be served by this either; the fair way to look on the matter is to wish the enterprise every possible success, financial and otherwise. One statement, however, which has been freely made, and constitutes a severe reflection on the Dublin building trade—namely, that the buildings could not have been put up by any Dublin contractor—remains to be refuted, now that the buildings are practically completed. That statement may now be pronounced as having been made without any foundation, and we can safely say the exhibition buildings could have been promptly, satisfactorily, and economically constructed by the Dublin building trade.

COMMENTS.

Irish Cement.

At the last meeting of the Irish Industries Association the following letter from Messrs. Cooper to Messrs. McFerran and Co., of Dublin, was read:—

Portland Cement and Lime Works, Drinagh, Wexford.—
"We are much obliged for your kind inquiry, but we regret we have no cement to offer at present, all our make being sold ahead for some time."

It was pointed out to the Council that this was the state of affairs for quite a long time, which had caused considerable inconvenience to public boards, and even to private firms who had required this Irish cement, and that every effort was made to induce the Wexford cement people to extend their output, and to supply the demand for this cement, which was growing every week, but without success. Even the Dublin Corporation, it was maintained, failed to be able to get a supply of this material, though their contract would be almost large enough to keep an ordinary works going. It was also said that the Richmond Asylum fared somewhat similarly in their contract.

In answer to Mr. Butler, Alderman Irwin said he believed that the Wexford cement stood on a par with the best imported cement, as regards chemical analysis, but the trouble was to get it.

Mr. Wallace and other members gave it as their opinion that there was a good field in Ireland for the establishment of an up-to-date cement works, which, if pitched in the proper place, would be made a most lucrative investment, as the demand for Irish-made cement was increasing every week, and something should be attempted to meet this demand and provide plenty of employment in the country.

The use of cement is daily increasing in Ireland, and it seems most deplorable that this trade in an article that can easily be produced in the country should be lost to it.

Speaking from personal experience, we can say that the Wexford cement is in every respect reliable, and compares favourably with the best imported varieties, and is, we believe, moreover, able to compete in price.

There seems to be an excellent opening for an enterprising syndicate to establish works and a permanent and prosperous industry in the country, and we trust the matter will not be allowed to drop.

A vacancy exists in the office of County Surveyor for South Galway, and has been advertised. The initial salary is £300 a year, with allowances amounting to £160. Candidates not possessed of strong local influence need not trouble themselves to apply.

LAW.

Labourers Acts.—Derelict Cottages in Cork.

The Judicial Committee of the Privy Council had before them on Saturday petitions against the labourers' scheme of the Cork R.D.C. in the course of the sitting.

Wm. Dillon, a victualler and cattle dealer, objected to two cottages being erected on a 74 statute acre farm. The farm is close to the borough boundary of Cork, and the petitioner said that there were 48 artisans' dwellings vacant in the neighbourhood. The erection of the cottages, he further said, was proposed for electioneering purposes.

The cottages referred to, we understand, form part of a scheme lately completed by the Cork Corporation, and they are now becoming vacant, owing, it is alleged, to their small size and high rents.

Action Against a Cork Building Contractor.

In the King's Bench Division, before the Lord Chief Justice, Mr. Justice Gibson, and Mr. Justice Kenny, an application on behalf of the defendant for judgment, or, in the alternative, for a new trial, came on for hearing in the case of Homan and Rodgers v. Hill, which had been tried by Mr. Justice Wright, without a jury, on the 2nd of February last, and resulted in judgment being given for the plaintiff for £279 6s. 9d., with costs. The action was brought by Messrs. Homan and Rodgers, engineers and constructors, of 10 Marsden Street, Manchester, to recover £428 7s. 9d., alleged to be due as balance of the price of work and labour done, and goods sold and delivered in connection with the erection of the Ballinasloe Lunatic Asylum, for which the defendant, Mr. Samuel Hill, building contractor, of Cork, had the contract. The defendant, who had lodged £80 in court, now sought to have judgment entered for him, or, in the alternative, that a new trial should be ordered.

Messrs. Ronan, K.C.; M. J. Burke, K.C.; M. Dunn, K.C., and Harley (instructed by Messrs. J. and J. Foley) appeared for the defendant in support of the application; and

Messrs. Brown, K.C., and Pim (instructed by Mr. Good) for the plaintiffs.

The arguments have not concluded.

Belfast Ancient Lights Case.—Judgment.

Last week, in the Court of Appeal, consisting of the Lord Chancellor, Lord Justice Fitzgibbon, and Lord Justice Holmes, an appeal was opened on behalf of the defendants in the action of George Ruddell Black v. the Scottish Temperance Assurance Company. The appeal was brought from the judgment of Mr. Justice Barton, dated 3rd March, 1906; and the order dated 3rd June, fixing the time within which the defendants were bound to comply with the judgment, and asked that the judgment be reversed. In the Court below, the plaintiff, who is an extensive manufacturer of boys' ready-made clothing in Belfast, sought an injunction against the defendants, to restrain them from continuing the existence of what he alleged was a nuisance or legal obstruction to the plaintiff's ancient light, in his factory warehouse, in James's Street, South, Belfast. The interference was caused by an elaborate and lofty suite of buildings, which the defendants had erected at the corner of Bedford Street and Donegall Square, immediately behind the new City Hall, at a cost of £64,000. These premises, when completed, overshadowed to a large extent the plaintiff's smaller premises situated adjacent thereto. It was proved that there was a considerable obstruction of light, caused not only on the ground floor, but on the two upper floors, where various operations in connection with the plaintiff's business were carried on, requiring a good supply of light; in particular, the plaintiff complained of the interference with the light in his cutting room. The defendants traversed generally these allegations, and submitted that the plaintiff had still sufficient light through these windows for ordinary purposes. Mr. Justice Barton had made an order restraining the defendants from maintaining the building in such a condition as to continue a nuisance. Subsequently the plaintiff obtained a sequestration order. The defendants then faced the portion of the building from which the light was reflected to the plaintiff's premises with white glass. But as it was proved that this did not obviate the nuisance, a mandatory injunction to remove the building was issued. From this the appeal was now taken.

Mr. C. Matheson, K.C.; Mr. John Gordon, K.C., M.P.; Mr. William Whitaker, K.C.; and Mr. J. M. Whitaker (instructed by Messrs. Johnstone and Walkington), appeared for the defendants, appellants. Messrs. Bates, K.C.; McGrath, K.C.; and Pigot (instructed by Messrs. H. and M. Mahaffy), appeared for the plaintiff, respondent.

Judgment was delivered on Wednesday, when the Court unanimously discharged the order of Mr. Justice Barton, and varied it by giving the plaintiff liberty now to accept £500 and costs, which had been offered by the defendant.

company, and in case the plaintiff should decline to accept that sum, that it be referred to the Chief Clerk at Chambers to assess the amount of the damages, the costs under such circumstances apparently to be reserved till after that reference.

BUILDING CONTRACTS.*

Some time since we reviewed the second volume of the third edition of a very important work on the law of building, engineering and ship contracts, and of the duties and liabilities of architects, engineers, builders, and surveyors, with precedents and reports of cases, by Mr. Alfred A. Hudson, of the Inner Temple, B.L., and a member of the London "Tribunal of Appeal," a court which decides disputes under the London Building Acts. Curiously, the second volume was published several months before the first, which has but lately come to hand. When reviewing the second volume, we dwelt upon the subject matter at some length, and the bulk of our remarks apply equally to the first volume. The fact that such a large and necessarily comparatively expensive work should have run into three editions in a short space of time, is indisputable evidence of the sterling value of the volumes as works of reference.

While the second volume is particularly devoted to actual records of decided cases, the first deals more fully with the general principles of law involved, which are set forth with unusual lucidity and precision, backed with references to actual decisions. The work is written by a lawyer, who, of course, is far better qualified to write such a work than any architect or engineer, while the author's experience as a member of the "Tribunal of Appeal" has afforded him unique opportunities of learning the precise nature of the most common matters of dispute arising in building contracts, a want of acquaintance with which has often led so many skilled lawyers, dealing with such matters, to waste much time and space upon matters seldom or never in dispute, to the neglect of others of everyday occurrence. The new edition has in large measure been re-written and brought up-to-date. The entire chapter on quantity surveyors and bills of quantities has been re-written, and the latest cases cited.

The growing importance of arbitration as a method of settling disputes has not been overlooked, and the law is more fully expounded than in any other work we know of; in fact, it may safely be said that the cases cited show the latest development of the law in all matters of building law.

In addition to being a member of the English Bar, the author is an architect, and, taking advantage of the knowledge so gained, has made the entire two large volumes readable, clear, and interesting to laymen as well as to lawyers, and he notes the desire that has sprung up amongst architects and engineers to make themselves acquainted with the law on the subject, and so to escape the pitfalls that lie before the ignorant and unwary.

The author quotes several American cases, and also notes the value of Colonial results, not as binding decisions, but as instances in which the Colonies have sometimes anticipated the home decisions. The entire value of American and Colonial decisions is argued and explained, and it is shown that although entitled to respect, their quotation always involves an enquiry as to whether English and American law are identical on the subject matter of the dispute, a necessarily troublesome process. Therefore, the importance of an American or Colonial decision must not be overrated. In Canada a decision given was, for instance, quoted in the English courts, but subsequently disregarded because it was found to be based upon old French and Canon Law. The author applauds the influence of the Privy Council and Court of Appeal for Colonial cases, as tending to uniformity of practice and interpretation, and we, for this reason, greatly regret to notice that a proposal by General Botha at the Colonial Premiers' Conference, to abolish reference by appeal to the Privy Council, was adopted. Probably General Botha only saw in this right a curtailment of the sovereign powers of the self-governing Colonies, forgetting the enormous value of uniformity of practice. Had this been realised, we should probably not have had this recommendation adopted, or even made.

The first volume is divided into twelve chapters, which in turn deal practically with nearly all the matters likely to form the subject of a building contract.

In his introduction, the author deals with the peculiarities of building contracts, which arise from many and varied causes, amongst which may be mentioned:—

- (1) The employer not knowing what he wants.
- (2) From his inability to understand drawing, and, con-

sequently, not knowing whether the plans really provide for what he does want. This is a fertile cause of dispute.

(3) From his not knowing whether the work described has been properly done or not.

(4) From the builder, in tendering, relying completely on the plans and specification.

(5) From plans and specification omitting essential items, or giving insufficient information, or even specifying impracticable work.

(6) From the nature of the complicated building conditions, handed down from generation to generation, added to and put together by the architect, and occasionally producing various legal results of more beneficial interest to the lawyer than to the building owner or the contractor; amongst such may be included the Irish Institute conditions, the arbitration clauses of which are simply wrapped in mystery—we have never yet come across any lawyer or architect who understood fully what they mean, and the combined wisdom of the Irish Judicial Bench has not elucidated them, and the moral is that it is difficult, if not impossible, for a layman to frame a good form of contract, and still harder to convey what he wants.

As touching the present dispute in Dublin regarding the arbitration clauses and to the final binding character of the architect's decision, Mr. Hudson remarks, that while this power of the architect to decide without appeal may seem a hardship, it has its advantages, because if the architect's decision is open to question under an arbitration clause, the decision loses its finality, and the building owner has remedies against the builder which he otherwise would not have had—e.g., he may recover against the building owner for defective work passed by the architect. (*Robin v. Goddard*, 1905, I.K.B., 294.) This is a very important consideration, which, added to the notoriously costly character of arbitration proceedings, and the want of finality of the decisions, should make those who seek to extend its use pause and ponder. If there is a cleanly knitted issue, the ordinary process of law is cheaper, more expeditious, and has the merit of comparative finality. As the English Master of the Rolls (*Collins*) observes: "If something that purports to be conclusive is subject to revision, it loses its finality."

Many other most important questions are dealt with. To give a few examples: Liability for inaccurate quantities. The chapter dealing with the foregoing matters alone contains over 30 pages, divided into three sections and about 30 sub-sections, with ample references to the decisions in Vol. II.

Similarly as quantities are treated of, so are such matters as "The Contract," "Obligations of Contractors," "Certificates," "Approved by Building Owner," "Extras and Alterations." Touching this last, we get the following valuable note:—

"Where there is a provision that written orders shall be obtained for extras or alterations, and merely a provision that they shall be valued by the architect, the valuation by the architect of extras not ordered in writing will not dispense with the necessity for written orders, nor enable builders to recover, unless the valuation is expressed to be final and binding."

There are many other sections dealing with other matters arising out of building contracts, but space forbids our dwelling further thereon. Take them all in all, these two volumes, containing over 1,800 pages, constitute together far and away the best modern work on building contracts. Moreover, they are so clearly and simply arranged and indexed, that it was pleasant and interesting to read them.

We have lately received a copy of "The Studio" Year Book of Decorative Art for 1907, a guide to the artistic construction, decoration and furnishing of the house. It contains about 230 pages full of illustrations of the most interesting work of the day, and representative of the most original thought. It comprehends the designs of houses, and all that pertains to their furnishing and fittings. Some of the examples given are really beautiful, while others are, of course, a bit tinged with eccentricity, as becomes the cult of *l'art nouveau*. Many excellent reproductions of water colours are given, and well convey the charm and clearness of the original. The price of the Year Book is only 5s., and it should be in the hands of every architect and student. It shows that the work of improving public taste in these matters, which the late Gleeson White had so near at heart, and did so much for, is being worthily carried on by his successors at the Studio.

* "Hudson on Building Contracts," Third Edition. Vol. I. Two Vols., £2 12s. 6d. London: Sweet and Maxwell, Ltd., Chancery Lane, 1907.

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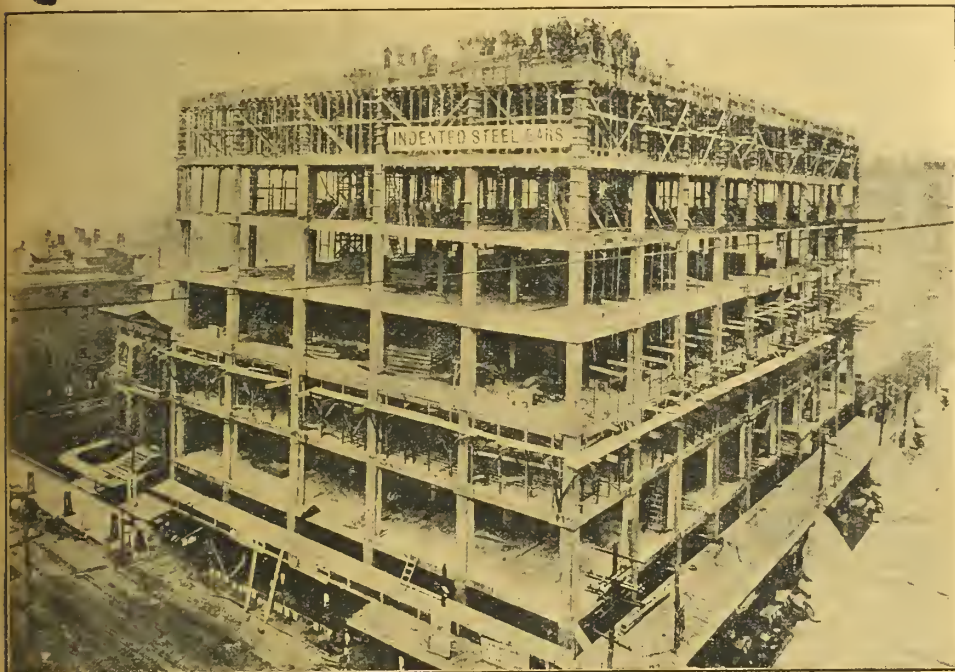
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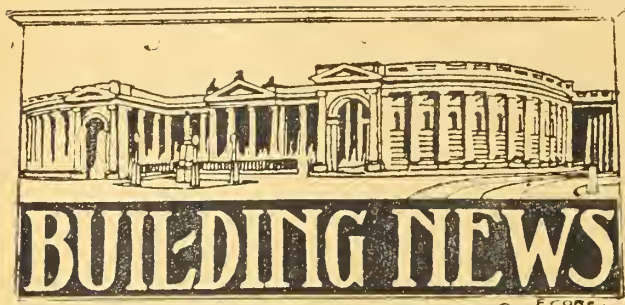
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Athlone.—Arrangements are being made for the erection of a substantial addition to Athlone Woollen Mills.

Belfast.—The architects for the new buildings at Purdysburn Asylum are Messrs. Graeme-Watt and Tullock. The name of another firm of architects was given in error in our last issue.

The tender of Messrs. Robert Corry, Ltd., University-street, Belfast, have been accepted for the new Carnegie Branch Library, Donegall-road. Messrs. J. and R. Thompson, Belfast, were the lowest tender for this work, but owing to the fact that they intended having the Mount Charles stone dressings worked at the quarries, instead of in Belfast, were disqualified by the conditions of contract, which provide that all work, where possible, is to be done by local tradesmen.

Messrs. Robert Corry, Ltd., are also at present building new shop and offices in Donegall-place for Messrs. Steen and Milliken. The front elevation is almost entirely in Mount Charles Stone. The architect is Mr. S. Stevenson, Royal-avenue.

Building operations will shortly be started for new front and internal alterations to Salem Methodist Church, York-street, at a cost of £2,400 odd. The contract has been given to Mr. Isaac Copeland, Whitla-street. Mr. W. D. R. Taggart, C.E., is the architect.

The Belfast Poor Law Guardians have at present under consideration the building of new Children's Infirmary at Lisburn-road for 198 patients. The quantities have already been prepared by Messrs. McCarthy and Brookes, Scottish Provident Buildings, and tenders will be asked for as soon as the loan is obtained from the Local Government Board. The architects are Messrs. Young and Mackenzie, Scottish Provident Buildings.

Mr. H. Seaver, B.E., architect, is at present preparing plans for an addition to Messrs. W. and G. Baird's *Evening Telegraph* Office on the site in Library-street lately occupied by Messrs. J. and R. O'Kane, wire merchants.

Messrs. Courtney and Co., contractors, Shaftesbury-avenue, have secured the contract for new Roman Catholic chapel at the Knock, and have started to put in the foundations. The architects are Messrs. E. and J. Byrne, Waring-street.

The tender of Mr. H. Keith has been accepted for building St. Clement's National School, Castlereagh-road, at a cost of £1,100. The building is of red brick, with Ballycullen stone dressings. The architects are Messrs. C. W. Ashe and Son, Waring-street.

Bangor.—Tenders are invited for building alterations and additions to Bangor Presbyterian Church. The architects are Messrs. Young and Mackenzie, Scottish Provident Buildings.

Ballinderry (Co. Antrim).—Messrs. H. Laverty and Sons, Belfast, are at present building extensive additions to Oatlands House for Mrs. Walkington. The architect is Mr. W. J. Fennell, F.R.I.B.A., 2 Wellington-place, Belfast.

Ballina.—The L.G.B. have written the Ballina Board of Guardians sanctioning the appointment of Mr. M. J. O'Boyle as engineer under the Labourers Acts, he having passed successfully at an examination held by Mr. McCabe, Inspector of the L.G.B.

Belmullet.—At the last meeting of Belmullet Union, Mr. P. D. O'Malley, assistant county surveyor, was appointed architect under the Labourers Acts at ten per cent. on plans of houses and plots, and 2½ per cent. on all other works. There was only one other applicant, Mr. J. Walsh, Ballyglass, who tendered at £2 5s. per cottage all told.

Tenders are invited for the reconstruction of a dwelling house at Belmullet, Co. Mayo, and for certain additions to same, in accordance with the plans, etc., prepared by Messrs. Doolin, Butler and Donnelly, Dawson Chambers, Dublin.

Carrick-on-Suir.—At the meeting of the Rural District Council, Mr. John Paddle, Assistant to the Kilkenny Co. Surveyor, was elected engineer in connection with the labourers' cottages to be erected under the new Labourers Act. Applications were also received from the following—Thomas Ormond, C.E., Clonmel; T. Lawlor, Assistant to County Surveyor of S.R. of Tipperary; and Francis Fleming, Piltown.

Claremorris.—Mr. T. O'Boyle, C.E., Claremorris, having passed successfully the examination held by the Local Government Board, has been sanctioned as engineer to the Claremorris District Council under the Labourers Acts.

Castlereagh.—The Local Government Board has written to the Castlereagh District Council informing them that they were satisfied with the appointment of Mr. M. J. Hanley as engineer under the Labourers Acts, and that he possessed sufficient experience for the post. They requested an explanation, however, from the Council as to their reasons for proposing to pay Mr. Hanley 8/- per cottage in excess of what another qualified candidate was willing to do the work for. It has been decided to summon a special meeting of the Council to consider the communication.

Carrigaloe.—Tenders were received for the erection of a villa residence at Carrigaloe for the Right Hon. Lord Barrymore, in accordance with plans and specifications prepared by Messrs. W. H. Hill and Son, architects, 28 South Mall, Cork.

Claremorris.—The Post Office authorities have completed negotiations with Mr. T. P. Donnellan, Claremorris, for the erection of a new Post Office in that town.

Co. Antrim.—Tenders are invited for the erection of a new church at Doagh, according to the plans and specifications of Mr. W. D. R. Taggart, 2 Wellington-place, Belfast which are available for inspection at their office.

Co. Down.—Messrs. John Andrew and Co., Comber, invite tenders for the erection of one large villa and fifteen workers' houses, according to plans and specifications, which are available for inspection at their office.

Dublin.—Tenders have been invited for building additions to the Leinster Club, in Clare-street. The designs and specifications have been prepared by Mr. J. J. Farrall, and Messrs. Beckett and Medcalf are the quantity surveyors.

Mr. Geo. L. O'Connor, C.E., M.R.I.A.I., has prepared plans and specification for the building of two houses in Richmond-place for Mr. Kennedy. Quantities have been taken out by Mr. J. Mackey, Dame-street.

Enniscorthy.—At a meeting of the Urban Council, Messrs. Tomlinson and Mills, Dublin, wrote forwarding a brief description of a labourer's cottage which they had built in other places, and which consisted of a large, well-lighted kitchen or living room, 15 feet by 10 feet 5 inches, and two sleeping apartments. Mr. Shaw said that houses of the class mentioned would be built for about £80. Chairman—They are very poor substitutes for the sort we want to build. We are not considering the proposal this time. Mr. O'Neill—It would be well if we could see one of those cottages. Mr. Godfrey said that houses of the class were built in Kingstown, and the Town Clerk was directed to write to the Town Clerk of Kingstown regarding them.

Killala.—The Local Government Board have written to the Killala District Council sanctioning the appointment of Mr. P. D. O'Malley, assistant county surveyor, as engineer under the Labourers' Acts.

Kilkeel.—At a meeting of the Kilkeel Rural Council, the Committee appointed to select sites for a third improvement scheme submitted their report. The scheme provided for the erection of 84 cottages and the provision of 87 plots, the total cost being £15,853 10s.

Londonderry.—The Proposal Committee of the County Council invite, on the 9th May, 1907, tenders for the under-mentioned work, viz., to alter, repair, and make additions to the Coleraine Courthouse.

With reference to a resolution of Councillor Boyd that the ground not required by the Technical Committee in Society-street be utilised by the erection of a fire brigade station and firemen's dwellings thereon, and calling for a report from the City Surveyor on the subject, Mr. W. J. Robinson has submitted his report to the Corporation, showing that it was possible to have the buildings suggested erected on the site mentioned. The total cost he estimated at £1,600. The matter was referred to the Fire Brigade Committee.

At a meeting of the Londonderry Committee of the Ulster Society of Architects, it was stated that Mr. R. H. Simmons has been offered and accepted a valuable appointment in Regina, Canada.

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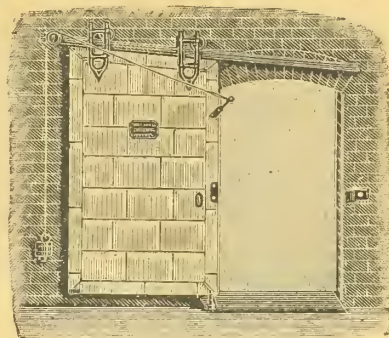
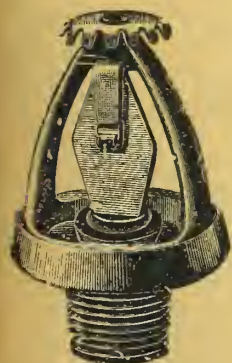
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THE MANAGER.

Limavady.—The Committee of Balteagh Presbyterian Church invite tenders from competent persons for re-seating and other improvements at Balteagh Presbyterian Church, Limavady. Tenders to be lodged on 13th May. Mr. M. A. Robinson, C.E., M.R.I.A.I., M.San.Inst., Richmond-street, Londonderry, is the architect.

Larne.—Messrs. H. Lavery and Sons' tender has been accepted for the building of new branch office in Main-street for the Northern Banking Company, Limited. The building is of brick, faced with Belfast perforated facing bricks, with Giffnock stone dressings and granite base. The architect is Mr. Godfrey W. Ferguson, C.E., Royal-avenue, Belfast. The estimated cost is £3,500.

Limerick.—The formal opening of the Gerald Griffin Memorial Schools, in Bridge-street, took place recently. The building of these schools is perhaps one of the most important events occurring in the ancient parish of St. Mary's for many years past. The building of the new schools was commenced about the 1st July last. Since then the schools have been conducted in the old City Jail. The plot for the site was acquired at very great expense, and the initial expenditure was also, of course, very heavy. It was on this site the old courthouse stood, and about the year 1840 it had been taken over for teaching purposes. The architect of the new schools was Mr. J. O'Malley, B.A., B.E., and the contractors Messrs. P. Kennedy and Sons, while the school furniture was supplied by Mr. Joseph P. Lynch. The schools have a frontage of some 90 feet, and the style of architecture is Romanesque. The entrance is approached from Bridge-street, and a short flight of steps leads to a playground at the rear of the building. The ground floor is occupied by two large schoolrooms, 34 x 28 feet, and 16 feet high from floor to ceiling, with a dividing screen in the centre. The rooms are extremely well lighted, heated, and ventilated. Two other rooms of corresponding dimensions, but 22 ft. high, form the uppermost storey, and these are reached by a flight of steps erected at the rear. The windows and other fittings are all executed in the most up-to-date fashion, while the heating and ventilation of the rooms leave nothing to be desired. The four spacious schoolrooms are capable of accommodating 450 pupils. The sanitary arrangements are also of the most perfect and up-to-date character, and anybody who has had experience of the attention paid to hygiene in the schools under the care of the Brothers do not need to be told of the care which is taken of the health of the boys.

Mayo.—Tenders are invited for the erection of a house at Cappavicar, Castlebar, by Mr. M. Ludden, Cappavicar.

Monaghan.—Local Government Board's Labourers' Cottages Condemned.—A large number of new labourers' cottages in the Monaghan Rural District—over sixty in number—are sanctioned for building. A long discussion took place at the monthly meeting of the District Council in Monaghan, just held, on the merits of the new style of cottage which the Local Government Board have adopted. With regard to the building of the new cottages in the district, Mr. Patrick Whelan, J.P., proposed, Mr. McQuaid seconded, and it was resolved:—"That we request our engineer (Mr. P. O'Neill) to draft a plan and specification for labourers' cottages, such cottage to contain kitchen and room on ground floor, loft composed of tongued and grooved boards, with access by stairs from kitchen. Roof to be slated over covering of felt, and chimneys to be constructed in such a manner as to draw off smoke properly." Mr. Whelan remarked that this class of cottage was very strongly approved of by labourers, ratepayers, and medical officers in the district, and their experience of houses already erected for labourers, and passed and approved by the Local Government Board Inspectors in the district is not such as would recommend the new plans suggested by the Local Government Board to them. Nearly all the cottages erected up to the present are smoky, and some only recently erected require immediate repairing.

At the monthly meeting of the Monaghan Rural District Council the Local Government Board wrote stating that having regard to the terms of the County Surveyor's (Mr. W. F. Barry) certificate, they would raise no objection to the appointment of Mr. P. O'Neill, Latlurcan, Monaghan, as engineer under the Labourers Act on the terms specified in the Council's minutes.

New Ross. It will be remembered that some weeks ago at the New Ross Rural Council a monopoly of positions worth, it is believed, £2000, was voted to one already well-provided officer of the County and Rural Councils. The work to be done involved the engineering and clerkship of works of a huge cottage scheme, necessitating a mountain of labour, thousands of miles of locomotion, and hours of daily attention, that no one man could possibly efficiently cope with. The question was raised at the meeting following the extraordinary appointment, but nothing was done. However, it has been raised again, and this time to some

purpose. At the meeting of the New Ross Rural Council, Mr. Denis Cummins handed in the following rescinding notice of motion:—"I hereby give notice that I will move at the next meeting of the New Ross Rural Council that the appointment of Mr. Jones to the combined position of engineer and clerk of works under the new scheme be rescinded."

Raphoe.—Tenders will be received on 17th May for building a parochial house at Raphoe for Rev. Edward M'Devitt, P.P., according to plans and specification of Mr. Edward J. Toye, architect, 20 Great James-street, Derry.

Sligo.—One of Sligo's oldest and most esteemed citizens in the person of Mr. Wm. Cochrane, C.E., of Cullenamore House, died during the week in his eighty-fourth year. Deceased, who was borough surveyor for Sligo Corporation, was in active practice until quite a short time ago. He was married to a daughter of the late Adjutant Faussett, who, in his day, was a noted figure in Co. Sligo, having at one time fought a duel with the late Mr. John Sommers, then M.P. for the county borough.

Swinford.—The Swinford District Council have appointed Mr. Taylor, Aclare, Co. Sligo, as architect under the Labourers' Acts at £2 15s. each cottage erected. There was only one other tender for the work—that of Mr. J. S. Cairns, Ballina, at £3 per cottage.

Tullamore.—A movement is about being made to have a Carnegie library set up in Tullamore, and it is hoped the efforts will meet with success.

Williamstown.—The Board of Guardians of the above Union have received tenders for carrying out certain works at the Williamstown Dispensary Residence according to specification prepared by Mr. A. M. Cornwall.

IMPORTS. Port of Dublin.

April 17—Per Katie Darling, from Cardigan, 108 tons bricks, J. M'Ferran and Co. Per Ellie Park, from Connah's Quay, 157 tons bricks, J. M'Ferran and Co. Per Lady Olive, from London, 880 sacks cement, J. M'Ferran and Co.

April 18—Per Princess Louise, from Irvine, 113 tons bricks, Monsell, Mitchell and Co.

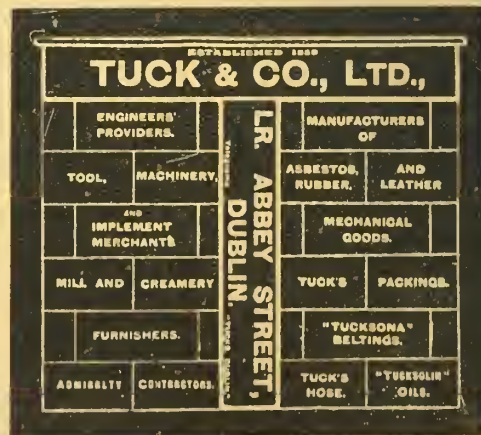
April 19—Per City of Berlin, from Antwerp, 65 cases window glass, Hoyte and Son; 51 do., J. Arigho and Son; 40 do., J. Kelly and Son; 6 do., T. P. and R. Goodbody; 10 do., C. Webb; 30 do., W. Martin; 4 do., J. Baird; 100 do., J. Lepersonne and Co.; 2 cases rough wired glass. T. Dockrell, Son and Co., Ltd.; 683 joists, 12 cases plate glass, 2 cases limestone, to order. Per Sarah Latham, from Chester, 130 tons bricks, A. Agnew. Per New Desing No. 2, from Bridgwater, 110 tons bricks, W. and L. Crowe, Ltd. Per Meridian, from Cowes, 145 tons cement, W. Chadwick. Per Lydia Cardell, from Rochester, 360 tons cement, A. Agnew. Per Marion, from Bridgwater, 95 tons bricks, W. and L. Crowe.

April 20—Per Clifton Grove, from Shoreham, 280 tons cement, T. H. Richardson.

April 22—Per Kyanite, from Rochester, 600 tons cement, T. and C. Martin. Per Mary Stewart, from Camlough, 90 tons whiting, Mackenzie and Co. Per Edith, from Port Dinorwic, 91 tons slates, J. Kelly and Son.

April 23—Per Inishowen Head, from St. John, N.B., 18,893 pcs. firewood, to order. Per Lady Wolseley, from London, 1,000 sacks cement, J. Kelly and Son.

April 24—Per Velinheli, from Port Dinorwic, 100 tons slates, Brooks, Thomas and Co., Ltd.



ENGINEERING SECTION.

ITEMS.

The witnesses, who so far have tendered evidence before the Royal Commission on coast erosion, have been practically unanimous in approval of the formation of a central authority having power to deal with the whole subject of coast defence. This important question is at present in the hands of various bodies whose functions overlap, and consequently what is everybody's work is nobody's work. On some parts of the coast there is no jurisdiction at all, a dangerous condition of affairs which demands immediate attention. The members of the Commission have, so far, carefully guarded their opinions, and it is impossible to form an idea to what end their views are tending. They are now about to make a detailed inspection of the coast line, a tour which will occupy about three months. This is a proper step to take, as it will enable the members to gain their impressions from actual observation.

* * * *

At the present moment the whole atmosphere of Dublin is charged with the forthcoming Exhibition; the public Press, the advertisement hoardings, and the conversation of the man in the street are all significant of the near approach of the opening day, to which every Irishman may look forward with some degree of pride. Since the idea of holding an International Exhibition was first formulated, the promoters have had to run the gauntlet of the severest criticism, some of which was justifiable, but much of which was engendered by narrow-minded hostility. Doubtless, in many cases a little more tact on the part of the authorities would have smoothed over the friction that certain lines of policy created, and, on more than one occasion, as we have pointed out in these columns, methods have been adopted by the executive which have been extremely difficult for the onlooker to comprehend. But the policy has now reached achievement, its crowning feature, and all concerned are entitled to congratulate.

* * * *

We must pass over the pleasant walks, the shady arbours, and the sparkling lake, which have turned the recent barren waste into a veritable pleasure. But we may dwell at length on that portion of the exhibition which will have peculiar interest for engineers, and should certainly command attention from the public. The exhibits in the machinery hall are an object lesson in what can be designed and manufactured in Ireland, and there will doubtless be many surprised visitors to this building. It is satisfactory to learn that it is more advanced towards completion than any other department, with the exception, perhaps, of the Canadian section, a result of the energetic and systematic methods of the engineer. Many months ago we were enabled to describe in detail the electric lighting and power plant to be installed in this building, which has been carried out very closely on the lines then laid down. The work has been executed by Messrs. Coates and Son, of Dublin and Belfast, who also held the contract for lighting the buildings and grounds. At the time of writing there still remains much to be done in the way of finishing touches, and in cleaning up, and it is possible these essential requirements will not be completed in time for the opening ceremony. But criticism stands abashed in the face of admiration of the things that are.

* * * *

Lord Cromer, when he bids farewell to the land which he has done so much to benefit, may look back on the results of his engineering enterprise with the satisfaction that it has resulted in the transformation of the whole country. It is well known that the financial position of Egypt has been entirely changed by his careful administration. But the difference in the hygienic conditions under which the inhabitants now live is, perhaps, not so fully realised. Formerly no regard was paid to sanitation, the houses and streets were ill-kept, and the health of the people was considered of but little account. Now Egypt is a recognised health resort, and the work of the sanitary authorities in the cities will bear comparison with that in any European country. But Lord Cromer's chief work is to be found in the colossal scheme of irrigation by which the sandy wastes have been turned into arable land, a scheme which is now in process of further development, and which will transform the once arid valley of the Nile into a fruitful agricultural district. To the man who has initiated and successfully

carried out such vast engineering enterprises a country pays just honour, and universal regret for his retirement will commingle with a hope that he may be spared many years to enjoy the well-earned rest from his labours.

* * * *

Some interesting experiments were lately carried out at South Thomastown, Marne, U.S.A., for the hydraulic compression of air by tidal power. The ebb and flow of the tide is not used for direct power purposes, but as a means of siphoning, and a working model has been in use for several months, preparatory to the installation of a 2,000 h.p. plant. In the latter a shaft 190 feet deep and 40 feet in diameter will be sunk, belled out to a larger area at the bottom. Within this will be the inflow and outflow shafts. The inflow shaft opens into a belled chamber, corresponding in form to that of the main shaft, but not filling it. At the base of the inflow shaft is a conical stone altar, upon which the water impinges, liberating the entrained air, which rises to a storage chamber cut in the rock. The water, freed from air, flows along, rises through the outflow shaft, and empties into the tail race. The plant being tidal, will be duplicated so as to work each way of the tide, and during slack water provision is made to run the plant by air storage. The power provided, if the results are successful, will be distributed through pipe lines for industrial purposes.

* * * *

If that past triumph of engineering enterprise, the great wheel at Earl's Court, was troublesome to design and erect, its demolition has been no easy matter. Since February 4th last Messrs. Cohen, Sons and Co., under the direction of Mr. W. T. Andrews, the well-known engineer, have been employing 130 men in the task of removing it. The first difficulty that arose was the discovery that none of the nuts could be unscrewed owing to rust, consequently the structure had to be practically sawn to pieces. When it is remembered that the wheel weighed over 1,100 tons the care with which this removal had to be carried out can be imagined. On April 18 the axle was dislodged from its bed and allowed to fall to the ground, a distance of 180 feet. This mass of metal was 32 feet long and 9 feet 9 inches in diameter, weighing about 60 tons, and elaborate precautions were necessary, as a railway line runs between thirty yards of the spot. Many abortive attempts were made, during each of which the trains were stopped, but the 2½-inch hempen ropes, and subsequently the wire ropes, snapped and even the pulley blocks burst with the enormous strain. However, after seven hours' effort by 150 men the axle was started and fell, without accident, end first into the timber bed prepared for its reception. Of the wheel, designed in 1895, and carried out at a cost of £60,000, only the legs remain, and these will be readily demolished within a few days.

* * * *

The Birmingham Association of Mechanical Engineers recently discussed the strength of cast-iron, which by many is looked upon as a fixed quantity. But those who are closely connected with foundry work are aware that there is an enormous variation in cast-iron, of its strength, hardness, and resisting properties to corrosion. Much depends upon the conditions attending the casting, and particularly upon the rate of cooling. Iron can be made exceedingly hard and strong by casting it in an iron mould, the surface of which acts as a chill. The shape and thickness of the metal also naturally have a great effect upon its character, a heavy casting being generally weaker, in proportion, than a smaller one run from the same metal. The amount of carbon present in the iron is of importance, especially in the form in which it exists, whether in combination or distinct. Silicon up to 2 per cent. increases the strength of iron, but sulphur tends to make the iron brittle by increasing the combined carbon. Manganese causes a similar result. Either too high or too low a casting temperature has a deteriorative effect. Mr. F. J. Cooke, who introduced the subject, gave many further interesting hints on the behaviour of cast-iron under various conditions, but in these days of steel columns, stanchions, and girders, cast-iron has quite lost its once pre-eminent position as a constructional material, and is becoming relegated, with its contemporary the framed floor, to text books and examination papers.

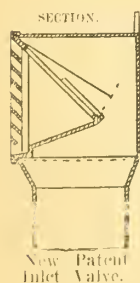
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Sir Alexander Kennedy, F.R.S., President of the Institution of Civil Engineers, recently presented the prizes to the

successful students at the Crystal Palace School of Engineering, and, in the course of his subsequent address, pointed out that the main idea of the school was the concentration of all branches of engineering. There was a great temptation to young men starting on their own career to decide that there was but one particular interesting department of engineering, and to neglect all others. If there was one thing fatal to the probability of the success of a practical engineer it was the idea that he should specialise when very young. Nearly all the best known engineers owed their success to the fact that they did everything that came to their hand, and there was no doubt that the best thing was for each student to endeavour to become a thorough all-round man. With such an authoritative expression of opinion most engineers will agree, more especially as the speaker did not protest against specialisation in later years. There are now so many branches and ramifications of engineering that an endeavour to become properly knowledgeable in them all would hinder cheap perception in any. But some acquaintance with the broad principles underlying each is essential, and thus later the development of that branch most attractive to the engineer will be rendered more facile and be attended with a greater measure of success. To-day is the day of the specialist, be it for good or for evil, and the necessity arises for the engineer to do all things well, but one thing excellently.

VENTILATION OF HOUSE DRAINS.

There is no doubt that one of the greatest problems of modern life, particularly in large cities, is the question of sanitation. Whether rightly or wrongly, we have grown up to demand that sanitary conveniences—baths, w.c.'s, etc.—shall be placed within our houses close to the rooms in which we eat and sleep and take our pleasure. That these things make life easier, pleasanter, and (in the case of baths) more hygienic, there is no question, but that they introduce dangers to be guarded against can also not be denied. Without proper safeguards it is a perilous thing for the inside of a house to be in direct communication with a drain, and hence modern sanitary science has devised traps, interceptors, water seals, impermeable pipes, and a host of other devices for excluding the dreaded sewer gas. Now, one of the *desiderata* in connection with house drainage is that the sewer between the house and the main should be properly ventilated, so that there should at no time be within it an accumulation of foul gas. Theoretically, the house drain ought never to contain any other gaseous product than pure air, so that all risk of the water in the various traps within and without the house becoming contaminated should be obviated.



which we have experience, and which possesses the following, amongst other advantages:—

- (1) Mica fits valve closely.
- (2) The round shape ensures close fitting on inside pressure.
- (3) The front louvre protects mica from destruction.
- (4) No dust can be blown into valve, as it is deflected by louvre bars.
- (5) No stones or obstructions can be inserted into pipe (a most important consideration).
- (6) All being strongly formed of galvanised iron throughout makes for great permanency, as well as thorough efficiency, and at a small cost.

This valve is made by Messrs. Frederick W. Barker and Company, Ventilating Engineers, York House, 199 Westminster Bridge Road, London, S.E., who will be pleased to send full particulars, with prices, etc., on application.

THE INTERCEPTING TRAP.

The Local Government Board is now interesting itself in the vexed question of the desirability or otherwise of providing intercepting traps on house drains, about which such keen controversy rages between sanitary experts from time to time. The Department, on March 5th, addressed a circular letter to the local authorities, requesting information as to whether such traps frequently lead to drain stoppage, this action being apparently a sequel to an investigation made on the subject by Mr. Brook Kitchen, architect to the Board; Dr. Mair, of the Medical Department; and Mr. Malet, of the Engineering Department. During the course of the enquiry it was found that, in numerous cases, a serious obstruction of the drain had occurred at the trap, naturally resulting in the house sewage gradually backing up the drain, and filling the inspection chamber, a process which could remain undetected for such a period as to become extremely dangerous to health. The information now required is to obtain wider corroboration or otherwise of the occurrences noticed, and the letter referred to above suggests that the Council should "allow their officers to undertake, under the supervision of the Medical Officer of Health, the systematic inspection of as large a number as possible of easily accessible inspection chambers, and to record (1) the number of traps examined, (2) the number of cases in which (a) the intercepting trap is blocked, (b) an accumulation of sewage exists in the chamber, (c) though no accumulation at present exists, the appearance of the chamber denotes a former accumulation, (d) the cap of the raking or cleansing arm has been displaced." It is also desired that the causes of the obstruction should, where possible, be accurately described.

All who are interested in sanitary affairs will warmly welcome the step taken by the Local Government Board, as the results of such an enquiry, held by such methods, should enable a final and proper opinion to be arrived at as to the desirability of continuing the use of the intercepting trap, now that house drainage is in itself better trapped, and the work carried out in a more competent manner. Those who hold that the interceptor should be abolished, contend that, by such a step, the main sewers will be properly ventilated by each private outlet shaft, thus relieving the sanitary authorities of a difficult task, and that as every internal sanitary fitting should be, and generally is, properly trapped and disconnected from the house drain, there is no necessity to again disconnect from the main sewer. Such arguments are, however, based on a happy assumption that the plumber is infallible, and that his work will stand for all time, which, however pleasing it may be to the optimist, is not borne out by experience. It is the fear of defect in the internal plumbing, which may occur through age or usage, and remain for long periods undetected, that leads the engineer and architect to desire a second line of defence in the intercepting trap. That the present method of disconnection leaves much to be desired goes without saying. The usual form of the trap is calculated to retard anything in the way of an obstruction, and unless a frequent inspection of the chamber is made, the latter becomes a miniature cesspit. This danger is increased by the carelessness of tradesmen, who, after removing the cap for cleansing purposes, omit to replace it. At the next stoppage of the trap, the sewage collects in the chamber until it reaches the level of the cleaning arm, through which it then flows away. The householder consequently remains unaware that the chamber is constantly filled to a depth of about twelve inches with crude sewage, and that the drainage system is in direct connection with the main sewer. Any engineer who has had experience of the state of the drain at the outfall under such circumstances will ardently hope that the Local Government Board enquiry will at least result in some better method of disconnection being devised.

ARCHITECTS WANTED

to note that THE DUBLIN DRAWING & PHOTO-PRINTING OFFICE is always at their service for making TRACINGS or WORKING UP DRAWINGS from sketches. All Drawing Materials supplied. Photo-prints a speciality. Tel. 2278. Address 17, Westland Row, Dublin.

The "Boyle" system of natural ventilation has recently been applied to the new Infectious Diseases Hospital, at Caerau, Glamorganshire.

FIRES AND THEIR PREVENTION.

It is a trite saying that "out of evil cometh good," and the inherent truth of the aphorism is well exemplified by the fact that many of the greatest advantages which people enjoy have accrued to them as the direct outcome of calamitous occurrences. This is especially the case in the matter of fire, which, through its ravages, strikes, almost more than any other plague, terror into the heart of man. Fire is, in fact, a menace to the lives of all men, and though its disastrous consequences are usually associated with loss of property, the tragedies for which it has been responsible are amongst the most heartrending in the history of mankind. Of the benefits which have directly sprung from fire, the most conspicuous in modern society is fire insurance, at present one of the largest businesses in the world, while the growth of fire brigades, improvements in the construction of fire engines, and the installation of efficient alarm systems, have done much to minimise the effects of fires or to prevent their occurrence. Much has also been done to ward off fire in the matter of building practice. As wooden walls and thatched roofs gave place to bricks and slates, so the latter, with their wooden floors, joists and rafters, are giving way to the use of incombustible material, or, in other words, to fireproof construction.

It must not, however, be forgotten that, however good fire engines may be, or however efficient fire brigades, fires will get beyond control before these agencies of safety come upon the scene; and, be buildings ever so fireproof, the fact always remains that the contents of these buildings are generally combustible and often highly inflammable. The consideration of these factors has led to the invention of various appliances for preventing the outbreak or, at least, the spread of fire. There are, for instance, hydrants and hose installed on large premises, chemical extinguishers, hand grenades, patent buckets, and a number of similar devices of greater or less efficiency. But these appliances have all their limitations, and it is only in the domain of what are known as automatic sprinklers that the ideal in the matter of fire prevention is to be found.

To attempt anything like a history of the evolution of the sprinkler would be outside our province, and would also run into more space than we have at our disposal. Suffice it to say, that the Grinnell may be set down as the first mechanically correct and practical sprinkler, and in the latest pattern there are many advantages which this type claims over other devices. In the first place, the valve-seating is placed in the centre of a flexible diaphragm upon which the valve impinges. The valve is held to its seat by levers soldered together, in such a way as to prevent the gradual yielding or accidental rupturing of the fusible metal, and the combination of levers and diaphragm is such that on the fusion of the solder, which takes place when the temperature reaches 155 deg. F., the valve only opens when the joint has been completely severed. Another novel and valuable feature is the valve itself, which is of glass, and consequently non-corrodible and non-adhesive. The importance of this may be realised when it is considered that it may be ten or fifteen years, or more, after erection, before a sprinkler head is called upon to operate, and during all these years the inside of the sprinkler valve and its seating is standing in water.

The sprinkler installation itself consists of lines of horizontal distributing pipes fixed at intervals of eight to ten feet along the ceiling of each room of the protected building, and connected with larger vertical rising pipes supplied from the public water mains, an elevated tank, or any other source of supply which will keep water in the pipes under a constant pressure.

To each of the lines of distributing pipes, and from 8 ft. to 10 ft. apart, the sprinkler heads are attached. Thus, when a fire breaks out in any part of a protected building, the heat rises to the ceiling, and the temperature quickly increases sufficiently to melt the fusible solder on the strut or valve support, the valve is released, and the water discharged profusely over the fire.

Attached to the installation is a hydraulic alarm valve, operated by the flow of water through the pipes. This is connected with a water-motor actuating revolving hammers, which sound a loud gong outside the building. The alarm

continues to sound so long as any water flows through the pipes.

The obvious advantages of an automatic sprinkler installation are that no human agency is required to distribute the water over the fire, and that it attacks the fire before it can make any headway. Wherever an outbreak occurs there is a sprinkler head within a few feet, which opens probably long before anybody in ordinary circumstances would have discovered the fire. The practical result of a sprinkler installation in operation is that wherever heat comes there also comes water.

The amount of water discharged from a single sprinkler head is hardly appreciated at first sight. It may be gauged, however, from the following facts:—A room measuring 100 ft. by 50 ft. requires 50 sprinklers to protect it. These sprinklers have a delivery equal to 20 fire brigade jets, which would tax the powers of half-a-dozen steam engines.

Of the value of the Grinnell Sprinkler there is no need to speak, inasmuch as its actual achievements are the best guarantee of its efficiency. In 25 years it has been instrumental in extinguishing over 10,000 fires, with an average loss of less than £60 a fire. As further evidence of the value of the invention, it may be mentioned that insurance companies all over the world now recognise the value of the automatic sprinkler by granting reductions in insurance premiums for those premises in which it is installed.

We have repeatedly advocated the installation of sprinkler systems in business premises in country towns in Ireland where there are no fire brigades worth the name, and where fires, once started, almost invariably burn themselves out. But even in cities their value has been amply demonstrated, and their utility is fully recognised by some of the largest firms in Ireland, as the following list of some large Irish firms who have Grinnell's sprinklers installed in their premises will testify:—Messrs. W. R. Jacob and Co., Ltd., Dublin; Messrs. A. Guinness, Sons and Co., Ltd., Dublin; Messrs. Johnston, Mooney and O'Brien, Dublin; Messrs. Paterson and Co., Ltd., Dublin; Messrs. Kynoch, Ltd., Clondalkin; Messrs. G. Perry and Co., Ltd., Dublin; Messrs. R. M'Calmont and Sons, Belfast; The York Street Flax Spinning Co., Ltd., Belfast; Messrs. W. and G. Baird, Ltd., Belfast; *The Belfast News-Letter*; Messrs. Gallaher, Ltd., Belfast; Messrs. F. Spaight and Sons, Limerick, etc., etc. In some of these premises fires have broken out from time to time, and owing to the operation of the Grinnell sprinklers, the damage has in all cases been nothing, or next to nothing.

These are facts which speak for themselves, showing, as they do, that the installation of sprinklers ought to be seriously considered by every firm in the country. Their use leads not only to the preservation of property, but also to the saving of valuable lives; and there is no doubt that were they universally adopted some of the most appalling of modern disasters would have been averted. It is worthy of note that in the United States of America the provision of automatic sprinklers is now compulsory by statute. Full particulars, estimates, etc., of the Grinnell Sprinkler may be obtained from the sole proprietors, Messrs. Mather and Platt, Ltd., whose Irish office is at Ashley Gardens, Belfast.

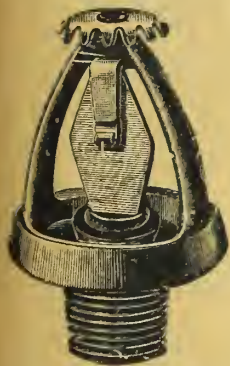
OUR ILLUSTRATIONS.

L.C.B. Labourers' Cottage Competition.

In this issue we publish some further illustrations of cottages by Mr. T. M. Deane, M.A., architect, submitted in the recent competition, also a pair of cottages designed for Mrs. R. Lyon-Moore, Londonderry.

The British Manufacturers' Publishing Co. issued at the end of last month a Directory of Architects and Surveyors, edited by Albert C. Freeman. The work, being the first of this character devoted to the profession, will contain a complete directory of all practising architects and surveyors, together with their degrees, qualifications, diplomas, works published, and other information, throughout the United Kingdom and the principal Colonies. It will also comprise directories of quantity surveyors, municipal engineers, and general information of a valuable character.

The exhibit of Mr. James D. Prior, of the Empire Works, Holliday Street, Birmingham, at the recent Building Trades Exhibition, has been transferred to the Irish International Exhibition, where it is now in course of erection.



ENGINEERING NEWS.

Athlone.—Mr. H. J. Crossley has been appointed Town Surveyor in succession to Mr. Prendergast.

Belfast.—The men who went out on strike at Messrs. Davidson's Sirocco Engineering Works about a week ago were paid all wages due to them on Saturday morning, when their connection with the firm ceased. Mr. S. C. Davidson states that a number of cross-Channel orders have had to be refused in consequence of the dispute. The firm are now making arrangements with their factory in Germany and also in England to have the work already in hands executed there. This will mean a considerable loss to Belfast, as the wages paid to the workmen in the Sirocco Works each year amount to some £20,000. Messrs. Davidson have been given to understand that not only will the labourers at the docks refuse to ship their goods, but that they will also refuse to handle coal intended for the firm. It is feared that if these threats are carried out the works will be entirely closed next week.

Callan.—The Board of Guardians of Callan Union have received tenders (1) for the repairing of the windmill; (2) for the supply and erection of an 80 gallon copper boiler in the laundry.

Co. Carlow.—Tenders are invited for the erection of a steel water tower and cast-iron tank, and the fixing of a hydraulic ram, etc., at Lisnavagh, Co. Carlow, the residence of Lord Rathdonnell. The plans and specifications are by Mr. W. P. Hade, M.Inst.C.E.I., Carlow.

Cork.—The Mallow Rural District Council invite tenders for the construction of intake works and service reservoir for Buttevant Waterworks; also providing and laying about 16,000 yards of cast-iron water-mains, together with valves, hydrants, special castings, and other works connected therewith. The plans and specifications are by Messrs. W. H. Hill and Sons, South Mall, Cork, and tenders will be received up to Friday, May 10th, 1907.

Cavan.—The Urban Council of above district have received tenders for alterations and additions to Cavan Waterworks, according to specification prepared by Mr. James Brady, C.E.

Dublin.—At a meeting of the Rural District Council a deputation attended from the South Union, and asked for the consent of the Council to the connection of the sewage of the new auxiliary buildings at Pelletstown with the drainage system of the North Union at Blackhorse Lane, Cabra. The Board of Works had no objection, provided the North Union and the Corporation were willing. The Corporation had already consented. The request was granted, subject to the consent of the Board of Works and the Corporation.

The Dublin and South-Eastern Railway Company invite tenders for the supply of 30,000 rectangular sleepers 8 ft. 11 in. by 10 in. by 5 in. Tenders close 15th May. Sleepers to be received in two deliveries respectively, August and April next.

Dungarvan.—At the weekly meeting of the Urban Council, held in the Council Room, Town Hall, a discussion took place regarding the proposed supplemental water scheme. Mr. Curran asked would the present source at Kiladangan be still utilised. Mr. Beary said it would be used to supply the railway and the creameries and the higher portion of the town. The Chairman said he knew the matter before the meeting was about the loan of £4,000, but before they would go to that expenditure he would be for again applying to the Rural District Council and asking them if they would be willing to allow the Ballinacourty scheme to supply Abbeyside. He was sure that they could get it for the £30 a year that the Guardians were paying the Urban Council for the supply of water to the union. Mr. Power said that he was afraid that would not be workable. He knew what the Ballinacourty scheme was, and he did not think it would be sufficient to improve to any considerable extent the existing water supply. Mr. O'Shea suggested that the Ballinacourty scheme might be used to supply Abbeyside, and that the water going to Abbeyside be cut off at the bridge. He asked Mr. Beary what amount of water was the Ballinacourty scheme capable of supplying. Mr. Beary—12,000 gallons a day. Mr. O'Shea asked was 6,000 gallons enough for Abbeyside. Mr. Beary—At present Abbeyside is getting perhaps less than 3,000 gallons. He would just like to remark that now they are not expending more than this original estimate on a plentiful water supply for the town. Kildangan cost £5,000, and the scheme now in contemplation was £4,000, so that really there was a difference of £1,000 between the two schemes. He had considered now every detail of this new scheme, and the more

he considered it, the more it appeared to him that this £4,000 scheme was necessary for the town. Mr. Sheehan seconded the resolution. Mr. Curran proposed as an amendment that the Urban Council make application to the Rural District Council in connection with providing from the latter's source at Ballinacourty a supply of water for Abbeyside. Mr. M. Scanlon seconded the amendment. Mr. O'Shea said that he would vote in favour of the amendment in this case, as he did not think the water supply in town was defective to such an extent as would necessitate the expenditure of a sum of money between £4,000 and £5,000. The estimate in connection with this scheme seemed to have varied very much from the beginning. The original estimate was £5,000, and a later scheme was £4,800, and now it was £4,200. He referred to the fact that at the time Mr. Keohan mentioned when the people were in favour of a £10,000 scheme that the rating of the town was very much less than at present. Mr. Walsh spoke in favour of the resolution. He said that if the Council would not decide to apply for the loan for the proposed scheme they should cut off the special supplies from Kiladangan source, and thus make it a purely domestic supply. This would mean a loss of revenue to the town, to make up for which the ratepayers should have to pay a rate which would more than cover the cost of the proposed water scheme. A poll was then taken, and there voted:—For the amendment—Messrs. Curran, Scanlon, Murphy, O'Shea, and the Chairman—5. Against—Messrs. Walsh, Power, Sheehan, Keohan, and Mahony—5. The Chairman gave a casting vote in favour of the amendment, which was accordingly carried. Mr. Walsh remarked that he would give notice of motion that the special supplies be cut off.

Galway.—A vacancy has arisen in the office of County Surveyor for the Eastern Division of the County of Galway, and the County Council will, on the 15th May, consider applications for the appointment.

Keedy (Co. Armagh).—At the last meeting of the Urban Council a discussion arose as to the appointment of an engineer to prepare the electric lighting scheme, and it was decided that Mr. J. B. Freeman, Dublin, be appointed on the usual terms.

Londonderry.—No. 1 Rural District Council will receive tenders to-day, 4th May, for carrying out certain works in connection with the water supply for the village of Park, in accordance with specification and form of tender prepared by Mr. M. A. Robinson, C.E., Richmond Street, Londonderry, and which may be seen at his office.

Navan.—A special meeting of the Meath County Council was held in Navan to take into consideration the amended proposal of the promoters of the Mullingar, Kells & Drogheda Railway Bill, by which this county's proportion of the guaranteed share capital will be reduced from £214,000, as originally proposed, to £60,000, thereby reducing the proposed guarantee from 33d. in the £ to 1d. in the £. Mr. John Sweetman presided. The matter was discussed at considerable length, and a proposition signifying approval of the bill was lost by 16 votes to 11.

Waterford.—The County Council of Waterford will on 21st May elect an assistant county surveyor at the salary of £130 per annum, subject to the concurrence of the Local Government Board.

ANSWERS TO CORRESPONDENTS.

Holy Cross Abbey.

If H. A. Prosser, Youghal (who wrote us on the subject of Mr. Close's measured drawings of Holy Cross Abbey), will communicate with Mr. Batsford, bookseller and publisher, 94 High Holborn, London, he can procure a second-hand copy on reasonable terms.

The London Electrical Fittings Co., Ltd., have recently opened new showrooms at 15 Newman Street, London, W.

Messrs. Clayton and Shuttleworth, Ltd.—The sixth annual report of Clayton and Shuttleworth, Ltd., Lincoln, engineers, states that the trading profits for the past year amounted to £111,328. After providing for debenture interest, depreciation, management charges, etc., the net profits were £63,753, and £6,759 was brought forward; £28,256 has been appropriated for expenses in connection with the issue of debenture stock, £5,000 placed to the reserve fund, and a dividend of 6 per cent on the ordinary shares is proposed, leaving £6,506 to carry forward.

REVIEWS OF CATALOGUES.

Messrs. Robert Brown and Son, Ltd., Ferguslie Works, Paisley, send us illustrated particulars of some of their specialities, which we consider worthy of the attention of our readers. The first is their smoke blow-down preventer (provisionally patented), which, though of simple construction, is most ingenious and effective in counteracting the effects of a blow-down chimney. It consists of a flue liner 2ft. 6in. long, having one of its sides bulged out into a D-shaped projection about 22 inches in diameter at its widest part, so as to form a circular chamber in the flue. A current of air descending the chimney is caught by this enlarged part of the flue, and diverted to the opposite side, whence it ascends with the up-draft or current proceeding from the fire, thus preventing the smoke being carried back into the apartment. These preventers are made in fire-clay, either round or square, so as to fit any of the sizes of flues or vents usually built; it may be placed in any convenient and practical part of the flue between the fire-place and chimney-top, preferably about 4 feet from the top of the fire-place opening, and the curved or elbow-shaped enlargement should be placed on the lower side of the flue run. With regard to the construction of flues and vents, it is a fact well known to architects that while special instructions may be given, they are apt to be overlooked or not properly carried out. In specifying the above article, however, architects have the advantage of relying on an automatic device which simply requires to be built into the course of the flue or vent. Another advantage is that it is self-contained, being made in one piece only, and so cannot be spoiled by careless workmanship, as would be the case if it had to be built up of two or more separate pieces.

Another of Messrs. Brown's proprietary articles is Marlow's Patent Grip-Back Tile, which is a thoroughly reliable self-fixing wall tile. It is the invention of a tile-fixer who has had twenty-six years' experience in the United Kingdom and America of the various makes of tiles. Hitherto such tiles as were available have nearly all had the same defect, viz., the undercut made either horizontal or vertical to the line of fixing. Therefore, when a settlement of the building took place, or expansion or contraction occurred through any other cause, the weakness of such grip-back tiles was at once made apparent. Marlow's grip-back tile has been designed so as to avoid these defects, and to this end the old and well-established dovetail joint has been availed of. This is admittedly the best form of keying joints, and it is enhanced by the lines of the undercut being at different angles and deeper than usual. Owing to the strength of the joint in Marlow's grip-back tile it is specially useful in cases where there is any vibration to be withstood. The cost of the tile is, we may mention, no greater than that of other tiles. Full information as to prices, samples, etc., may be obtained from the manufacturers, and specimens may be inspected at the Dublin depot, No. 60 North Wall.

Messrs Engert and Rolfe, Ltd., Barchester Street, Poplar, London, E., send us an interesting brochure dealing with their "Lithonite" system of sheet asphalt. It is common knowledge in the building trade that of late years the cost of building has risen to such an extent that it has become necessary, whenever possible, to reduce the expense of various items of construction as much as is possible, provided always that such saving is effected without a corresponding reduction in stability. One result of this tendency is that the flat roof, with or without a mansard, is a frequent form of modern construction, since its adoption instead of the pitcher roof enables a considerable saving to be effected in the total cost of the building, as well as offering other appreciable advantages. Flat roofs have, of course, their disadvantages, the chief of which is the difficulty of selecting a suitable covering material. Needless to say, the old and reliable natural roofings—namely, slates and tiles, cannot be employed, and we have to fall back on metal or one or other of the various vulcanite or asphalt preparations which are on the market. Now, metal flats are troublesome to lay, unsightly, expensive, and unsuitable for hard wear. Some of the vulcanite coverings are certainly excellent, though others leave much to be desired in the matter of resisting climatic and temperature changes, while rock asphalt is often unsatisfactory in withstanding the effects produced by expansion and contraction. "Lithonite" sheet asphalt is claimed to overcome these various drawbacks. It certainly is most economical as regards cost, and can be applied to either timber or concrete construction. It provides a perfectly level surface without drips or rolls, and has the great advantage of not cracking. Actual tests have proved it to possess greater fire-resisting properties than tiled or slated roofs, and it is absolutely unaffected by the weather or changes in temperature. Being level and without projections, it offers no resistance to wind, and cannot be damaged by storms. The booklet before us will be found interesting by all connected with the building

trade. It gives sectional illustrations showing how "Lithonite" is to be laid and the way in which it may be adapted to all the requirements of a flat roof, no matter how complicated the ground plan.

The booklet and any further particulars that may be deemed necessary can be obtained from the manufacturers at the above-noted address.

CONTRACTS.

KINGSTOWN URBAN DISTRICT COUNCIL.

NOTICE TO ARCHITECTS AND OTHERS.

The Council of the Urban District of Kingstown invite Competitive Drawings for Houses which it is their intention to build in Kingstown for the Housing of the Very Poor.

The Drawings will be submitted to a professional assessor, and the gentleman whose plan is considered to be the best and to comply with the particulars of the Competition will be paid a premium of £100. A second prize of £20 will also be paid, on the advice of the assessor. The selected plans to become the sole property of the Council, and no further remuneration shall be paid to the Architect should the Council decide to carry out the works themselves.

If none of the Drawings are considered by the assessor to comply with the conditions of the Competition, the above-mentioned premiums will not be awarded.

Plans of the sites, with sections and particulars of the classes of buildings desired, and of the condition of the Competitions, can be obtained from the Town Clerk on payment of 1s. each set.

Each plan and estimate is to be marked by a motto or other device, and they are to be accompanied by a sealed envelope marked in the same way. The name of the Competitor is to be enclosed in the envelope.

The documents are not to contain any indication of the name of the Competitor.

The plans are to be received in the Office of the Town Clerk not later than 10 a.m. on Monday, 1st July, 1907.

By Order,

M. A. MANNING, Town Clerk.

Town Hall, Kingstown, 1907.

TO BUILDING CONTRACTORS.

Tenders are invited for the reconstruction of a dwelling-house at Belmullet, Co. Mayo (recently destroyed by fire), and for certain additions to same, in accordance with drawings and specification prepared by the undersigned, and which may be inspected on application to T. J. O'Reilly, Esq., American Street, Belmullet, Co. Mayo, or at our offices.

DOOLIN, BUTLER AND DONNELLY,

Architects.

Dawson Chambers, Dublin, April 10th, 1907.

GIRDERS, ETC., FOR SALE.

Wrought-iron built Girders for Sale, short time in use, good as new, varying in lengths from 13 to 33 feet, width 8½ in. to 12½ in., depth 1 ft. 3 in. to 2 ft. 3 in. Also a few Box Girders.

Can be seen at Cork Street Engineering Works, Dublin.

ARCHITECT'S ASSISTANT.

Young Man (23) desires situation as Architect's Assistant. Sound general knowledge. Working drawings, details, quantities, specs., surveying, levelling, etc. Has experience in school and church work. Salary moderate. Apply to this office.

YOUNG MAN, will shortly be disengaged, desires a situation as Builder's Assistant. Is a practical man. Good knowledge of plans and management of work and men, and correspondent. Strict T.T. Good references. Apply "D." 457, "Irish Builder."

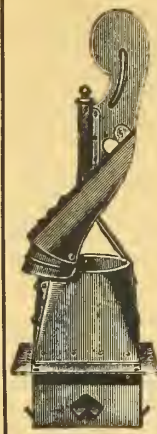
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In imitation of
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MARBLE,
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DESIGNS ON
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JOHN'S PATENT COWL AND VENTILATOR.

Square, Round, or Oblong.
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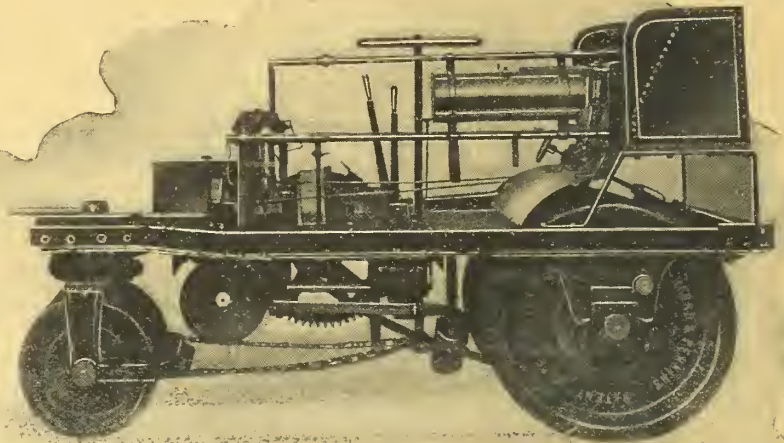
Already adopted and used by H M. Government,
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FIVE SIZES FOR ROAD-MAKING, ESTATE
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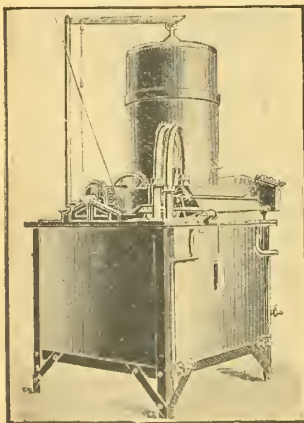
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NO COAL OR WATER CARTING.

MOVES EITHER WAY. SMOKELESS.



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IS the safest and most convenient lighting apparatus for private houses, churches, schools, hospitals, railway stations, barracks, camps, manufactories, lavatories, hotels, restaurants, villas, mansions, country houses, small towns, &c.

Gold Medal awarded at the Exhibition at Hanover (1905)
and Halberstadt (1904).

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No skilled attendance necessary.

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HIGH-CLASS SEWERAGE.

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GLASS GLAZED SEWER PIPES

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CLOSETS.
LAVATORIES.
URINALS, ETC.

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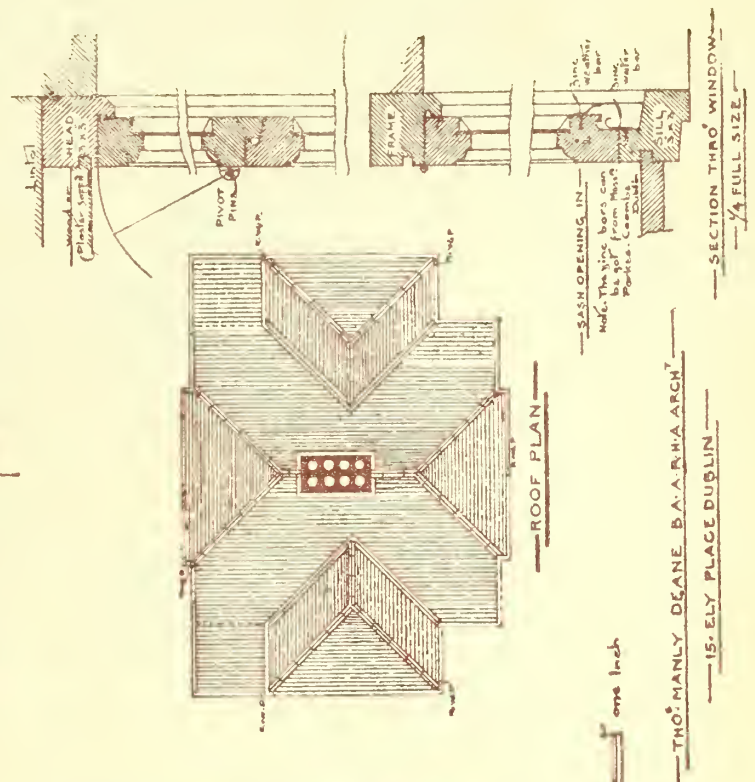
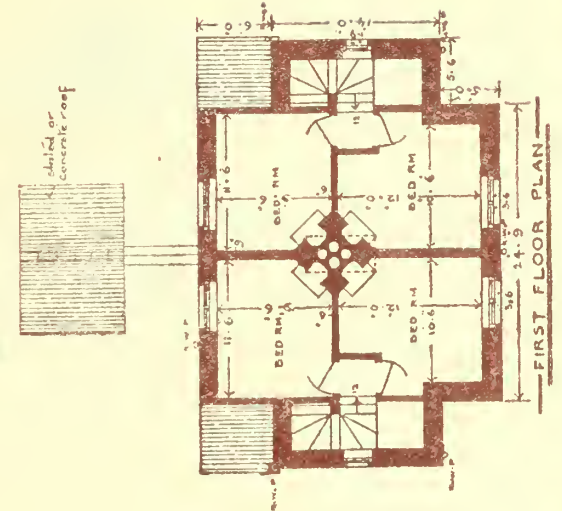
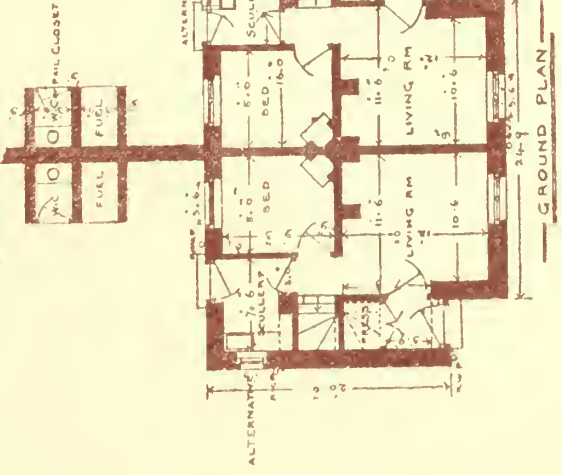
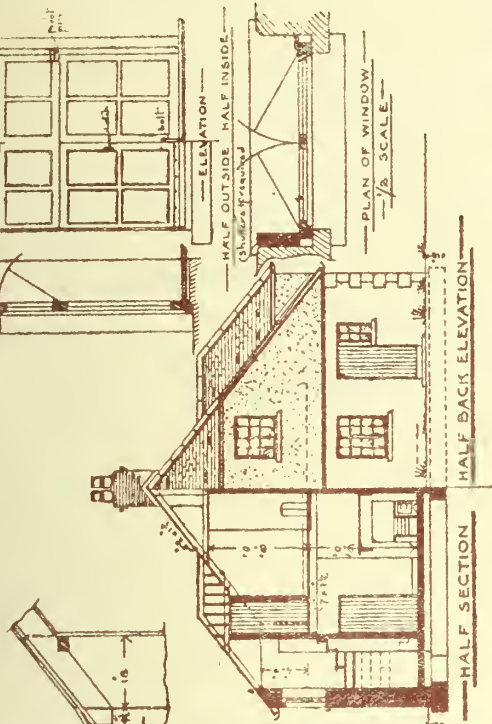
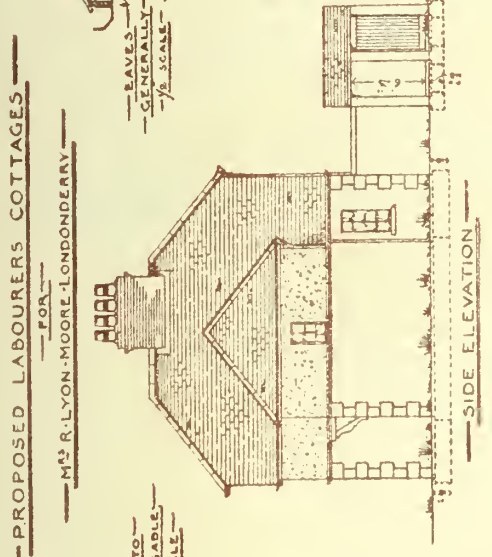
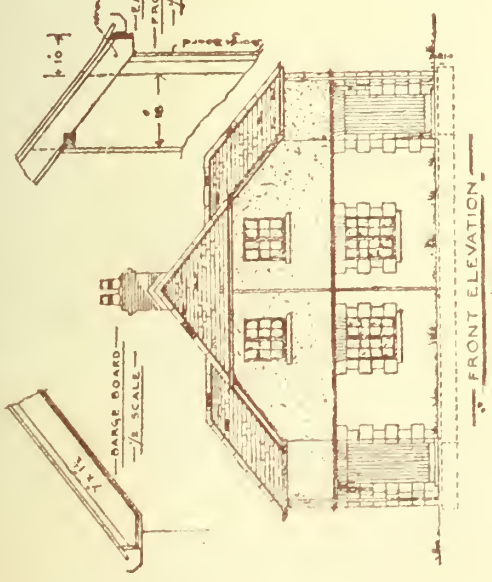
Telephone: No. 73 X.

HOLDER OF LARGE STOCK OF ABOVE GOODS

Telegrams: "Glorney" Dublin.

PROPOSED LABOURERS' COTTAGES

FOR
MR. R. LYON-MOORE, LONDONDERRY



Scale of Feet
0 5 10 15 20 25 30 35 40 45 50 55 60 65 70 75 80 85 90 95 100

THO. MANLY DEANE B.A. R.H.A. ARCHT.

15. ELY PLACE DUBLIN

SECTION THRO' WINDOW

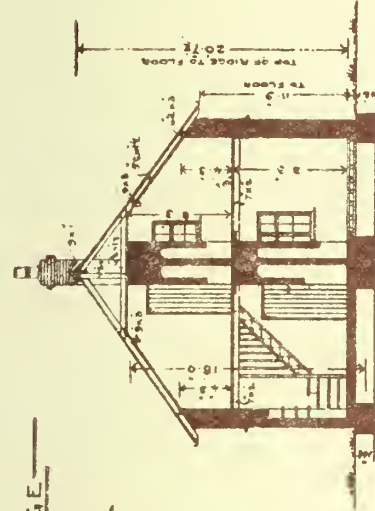
1/4 FULL SIZE

THE LIBRARY
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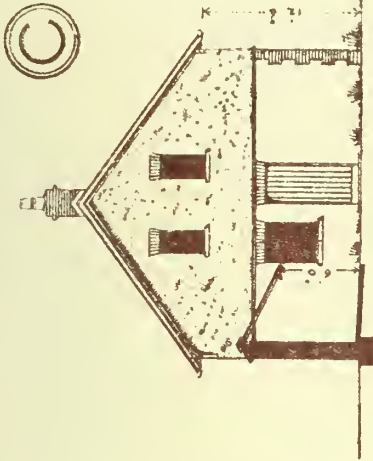
DESIGN FOR
LABOURERS COTTAGE
—L.G.B.I.—
COMPETITION.



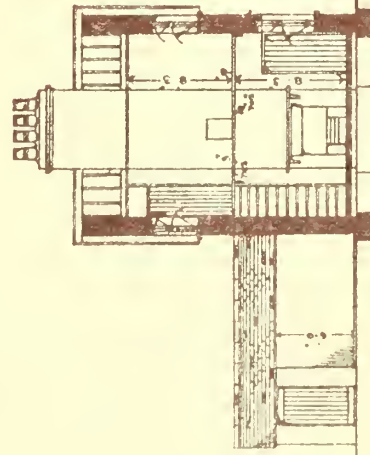
FRONT ELEVATION



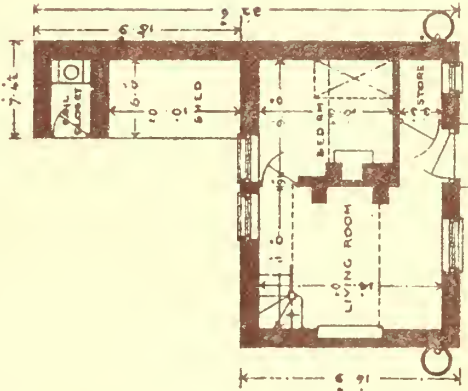
LONGITUDINAL SECTION



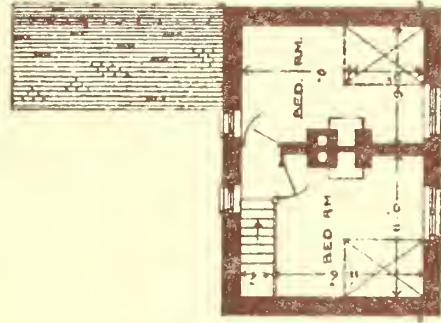
BACK ELEVATION



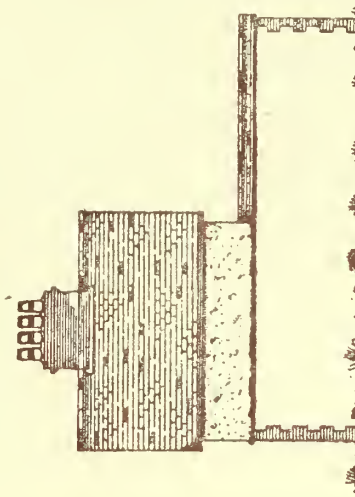
CROSS SECTION



GROUND FLOOR PLAN



FIRST FLOOR PLAN



SIDE ELEVATION



SCALE OF FEET

CORRESPONDENCE.

Correspondence Between the R.I.A.I. and the L.C.B.—
Labourers' Cottages.

TO THE EDITOR OF THE IRISH BUILDER.

DEAR SIR,—I have been instructed by my Council to send you the enclosed correspondence which has passed between my Council and the Local Government Board, with reference to the appointment of architects to supervise the erection of labourers' cottages under the Labourers (Ireland) Act, 1906.

Since the date of the last letter it has been stated by the Chief Secretary in the House of Commons that "many highly qualified architects had applied to Rural District Councils for employment at less than the maximum fee fixed by the Board."

My Council has had an exhaustive search made through all available newspaper reports of applications for posts as architects under the regulations of the Local Government Board, and have failed to find that any member of this institute, which numbers amongst its members most of the practising architects of standing throughout Ireland, have applied "at less than the maximum fee fixed by the Board."

Further than that, my Council wishes to point out that many, if not most, of the applicants are totally unqualified to act as architects, several of those appointed by the District Councils having even been objected to by the Local Government Board as unfit under the exceedingly wide qualifications in the Regulations under the Act, while in other cases the competition for the post proved abortive, there being only one applicant.

The inevitable result of fixing such very low fees is to render it impossible for an architect of any standing to apply for such employment, and consequently inferior men are appointed, with results highly detrimental to the public interest.—I am, sir, your obedient servant,

JAMES H. WEBB, Hon. Sec.

The Royal Institute of the Architects of Ireland,
20 Lincoln Place, Dublin, 9th May, 1907.

Royal Institute of Architects of Ireland,
20 Lincoln Place, Dublin,
27th September, 1906.

SIR,—In the absence of our honorary secretary, R. C. Orpen, I beg to state that the Council of the Royal Institute of Architects of Ireland have had under their consideration the proposals of the Local Government Board with regard to persons who shall be deemed eligible for employment as architects etc., under these Acts, together with the remuneration they are to receive, and to submit a list of the amendments to same which they consider it would be advisable to make.

They are of opinion that the minimum fee of 2½ per cent. should only apply to exceptional cases, where, for instance, a large number of cottages are built in close proximity to each other.

Although the Council have not received any invitation from the Local Government Board to submit their views on this subject, they have been given to understand that an expression of their opinion thereon will not be unacceptable to the Board.

I am, sir,

Your obedient servant,

WILLIAM M. MITCHELL, President.

To the Secretary, Local Government Board,
Custom House, Dublin.

SUGGESTED AMENDMENTS.

Clause 48. Section 1.

- (a.) Associates of the Institute of Civil Engineers of Ireland are not qualified to practice as engineers.
- (c.) Council is of opinion that a diploma or degree as described with two years' experience on works is not sufficient qualification, and suggests that the paragraph should read, "and have three years' experience in an architect's office."
- (d.) That paragraph (d) be omitted, as eligible Assistant County Surveyors can be employed under paragraph (f).
- (e.) That the period of training in paragraph (e) be extended to five years.

Clause 49. That "shall" be substituted for "may" in the first line of clause 49 after the words "District Council," and that the words "as already defined" be inserted after "competent person."

Clause 49. (6.) That payment under paragraph (c) be by a sliding scale, with a maximum of 5 per cent. and a minimum of 2½ per cent., depending on circumstances, with expenses in addition.

Local Government Board, Dublin,

29th September, 1906.

SIR,—I am directed by the Local Government Board for Ireland to acknowledge the receipt of your letter of the 27th instant relative to the draft rules prepared for the purposes of the Labourers (Ireland) Act, 1906; and I am to state that the suggestions made by your Council will receive the consideration of the Board before the final revision of the rules.

I am, sir,

Your obedient servant,

A. R. BARLAS, Secretary.

To William Mitchell, Esq., President, Royal Institute of Architects of Ireland, 20 Lincoln Place, Dublin.

The Royal Institute of the Architects of Ireland,
20 Lincoln Place, Dublin,

26th February, 1907.

SIR,—I am instructed by my Council to ask if it would be convenient for your Board to receive a deputation from my Council in order to submit a statement dealing with the fees of architects employed under the Labourers (Ireland) Act, 1906.

I am, sir,

Your obedient servant,

JAMES H. WEBB, Hon. Sec.

To the Secretary, Local Government Board for Ireland, Custom House, Dublin.

Labourers Department,

Local Government Board,

Dublin, 28th February, 1907.

SIR,—I am directed by the Local Government Board for Ireland to acknowledge the receipt of your letter of the 26th instant, and to state, in reply, that they do not think that any useful purpose would be served by their receiving a deputation from the Council of the Royal Institute of Architects of Ireland regarding the remuneration of architects employed under the Labourers Acts, as the matter was very fully considered by the Board before prescribing the scale of fees laid down in their order of the 1st of November last.

I am, sir,

Your obedient servant,

M. O'SULLIVAN, Assistant-Secretary.

To James H. Webb, Esq., Honorary Secretary,
Royal Institute of Architects of Ireland.

The Royal Institute of Architects of Ireland,
20 Lincoln Place

Dublin, 26th March, 1907.

SIR,—I am directed by the Council of the Royal Institute of the Architects of Ireland to acknowledge the receipt of your letter of the 28th February conveying the unwillingness of your Board to receive a deputation in reference to the remuneration of architects employed under the Labourers Act on the ground that the matter has already received very full consideration at its hands.

My Council regrets that the Institute, as representing the architectural profession in Ireland, should not have been officially consulted before rules and regulations vitally affecting the interests of architects were passed.

It conceives that in fixing a scale of remuneration that would have induced architects of experience and reputation to undertake the work the interests of the public would have been better safeguarded.

(1.) My Council desires me to point out that, in its opinion, the maximum rate of remuneration allowed under clause 51 of the Rules and Regulations issued by your Board under order of 1st November, 1906, viz., a commission of 2½ per cent. upon the cost of the executed work, is, except in the case of comparatively large schemes, entirely inadequate having regard to the multifarious and responsible duties required of the architect under this clause, and compares unfavourably with the scale of fees payable to clerks of Councils, medical officers of health, and solicitors employed under this Act.

(2.) The fixing of such a fee as a maximum may conceivably inflict great hardship on architects in certain circumstances. As, for example, in a case where a Rural Council does not adopt the stereotyped drawings and specification supplied by the Board, but obtains the consent of your Board under clause 37 to the adoption of special designs and specification prepared by its own architect for a scheme comprising, perhaps, only a very few cottages. Even for such a scheme the Rural Council would have no

power to pay a higher rate of commission than $2\frac{1}{2}$ per cent., although that commission was obviously never intended to cover the cost of special designs or drawings. In such a case, too, the charge for copies of the drawings and specification to the persons tendering could not exceed the 5s. per copy prescribed in clause 38, notwithstanding that they would have to be specially prepared at a cost greatly exceeding that sum.

(3). In cases of alteration or additions to existing cottages contemplated under clause 15, no scale of fees has been fixed for the necessary surveys of the buildings nor for the special drawings and specification which would then be required. It must be evident that the maximum commission of $2\frac{1}{2}$ per cent. would not be sufficient to cover such services.

(4). The duties of the architect or engineer, as described in clause 51, might with advantage be more clearly defined.

(a) "For making plots on Ordnance Survey map." Clause 18 requires that "the maps shall be carefully checked and corrected so as to accurately show the positions of existing roads, lanes, fences, and buildings" in relation to plots proposed to be acquired, but no fee is mentioned for this work which may involve a considerable amount of survey work.

(b) The commission is intended to cover "the preparation of all maps, plans, and specification that may be required."

The number of copies to be supplied for the fee should be fixed, and additional copies should be paid for in proportion to the labour involved in each case. My Council would lay special stress upon this point, as it is not clear by whom the copies of the plans and specification referred to in clause 38 are to be prepared.

(5). No allowance has been fixed in respect of works included in a scheme proposed by a Rural Council, but subsequently abandoned. As your Board is aware allowances for rejected cottages have been almost universally granted hitherto, the usual rate being 25s. per cottage.

(6). No allowances are permitted to cover cash paid, travelling expenses, including hire, although in many cases, where the area included within a scheme is large, the amount of these expenses is very considerable.

(7). My Council deprecates most strongly the power given to Rural Councils under sub-section (1) of clause 51 to invite tenders from architects and engineers with the object of inducing them, under the stress of competition, to undertake the duties required under the Act for a bulk sum. This course is already being very generally adopted by the Rural Councils throughout the country, but my Council considers that it is neither in the interest of the public nor just to the honourable profession of architecture that it should be allowed to continue.

Even under the former regime when fees were paid which gave reasonable remuneration to qualified architects, there were occasional instances, probably not unknown to your Board, of faulty design and of careless or ignorant supervision due to the employment of incompetent or unreliable persons, with results disastrous to the ratepayers; but how much greater are these evils liable to become when the fees have been so reduced by the action of your Board as to make it impossible for architects of reputation to accept them.

To sum up, my Council would ask your Board to reconsider the scale of remuneration of architects under these Acts in the following particulars, viz.:—

(1) To fix a basis of remuneration for all survey work involved in checking and revising the Ordnance Survey maps.

(2) To fix the commission, in all cases of alterations and additions, to cottages, at 5 per cent. on the cost of the executed work, and to allow an adequate fee in addition for the surveys of existing buildings.

(3) To fix a *minimum* commission of $2\frac{1}{2}$ per cent. in the case of all cottages erected from the drawings and specification supplied by the Board where the cost of the executed work in any one scheme is not less than £6,000.

To fix the remuneration for smaller schemes on a sliding scale, with a maximum of 5 per cent. for small groups of cottages erected from special drawings and specification prepared by the architect to the Rural Council and involving the expenditure of less than £1,000.

(4) To fix the allowance for cottages included in a scheme, but subsequently rejected.

(5) To allow cash paid travelling expenses, including car hire.

(6) To fix the number of copies of drawings and specification to be included in the percentage commission, and to arrange a basis of charge for the additional copies required.

(7) To delete sub-section (1) clause 51 from the Rules and Regulations under this Act.

Having regard to the facts my Council have now placed before you, I am directed to ask if your Board will kindly reconsider the decision conveyed in your letter of the 28th February.

The Royal Institute of the Architects of Ireland,
20 Lincoln Place, 8th April, 1907.

SIR,—I am instructed by my Council to ask if you received my letter of the 26th March, 1907, as I have not received a reply.

Yours faithfully,

JAMES H. WEBB, Hon. Secretary.

To the Secretary, Labourers Department, Local Government Board, Custom House, Ireland.

Labourers Department, Local Government Board,
Dublin, 10th April, 1907.

SIR,—The Local Government Board for Ireland have had before them your letter of the 26th ultimo with reference to the remuneration payable to architects under the provisions of the Rules and Regulations issued in pursuance of the Labourers (Ireland) Act, 1906; and, in reply, the Board desire to state that they have very carefully considered the views put forward by you on behalf of the Council of the Royal Institute of Architects of Ireland, but they are not prepared to re-open the matter.

In the circumstances no advantage could at present arise from the Board receiving a deputation on the subject as requested.

I am, sir,

Your obedient servant,

M. O'SULLIVAN, Assistant Secretary.

To James H. Webb, Esq., Hon. Secretary, Royal Institute of the Architects of Ireland, 21 Clare Street, Dublin.

OUR ILLUSTRATIONS.

Sketches in Yorkshire.

Fountains Abbey is situated amidst most beautiful surroundings within three or four miles of Ripon. The major portion of the church was built about the year 1140 A.D., and is an example, so frequently seen in this part of England, of the use, side by side, of Norman detail and pointed arches. The same thing is seen at the Abbeys of Jervaulx, Rievaulx, Byland, etc., and quite frequently in churches. The east end and the tower at Fountains are of later dates. Considerable remains are also to be seen of the monastic buildings, the "cellarium" being of most imposing dimensions and fully vaulted. Anyone visiting Fountains Abbey should also take a look at the Old Hall which is near at hand.

Yorkshire and Lancashire appear to abound in quite diminutive old churches very different from the Nene Valley, and East Anglia, where magnificent edifices are so frequently to be met—and Copgrove Church is a very typical example, consisting of nave and chancel, with a bell-cot. Scawton Church is similar in plan, and of very early date: it lies on the ridge of hills just between Rievaulx and Byland Abbeys.

The western tower at Bolton Abbey in Wharfedale, if it had been completed, would, no doubt, have been most magnificent. Unfortunately, it spoils the view of the original thirteenth century western entrance.

Markerfield Hall is quite a gem, well worth the trouble of travelling the bit of bad road leading to it. The sketch is taken in the courtyard, which is entirely surrounded by buildings, the entire structure being protected by a moat, with gate-house and bridge—probably originally a drawbridge—and there are also complete stable buildings and out-offices of the late 16th century. The Hall is occupied by a farmer and his labourers, and is within a few miles of Ripon.

E. B.

ANSWERS TO CORRESPONDENTS.

"The Studio."

Messrs. W. Martin and Sons.—The address of "The Studio" is 44 Leicester Square, London.

Tiles on a Boarded Floor.

W.A. wants to know if he can make a good job of laying tiles on a boarded floor, and if so how?

LAW.**The Clontarf Main Drainage.**

In the Chancery Division, before the Master of the Rolls, the adjourned injunction motion of Messrs. Crawford and Frame, contractors, against the Corporation of Dublin, in reference to the main drainage scheme at Clontarf, was disposed of.

Mr. Ronan, K.C., said that he applied that an injunction should issue restraining the defendants, their officers or agents, from entering or perfecting or sealing any contract for the Clontarf main drainage works other than a contract with the plaintiffs until judgment in this action or until further order. The substance of the case was that the plaintiffs' tender for the works was accepted. The form of contract was furnished and approved, and for some mysterious reason the Corporation irregularly cancelled the contract, and gave it to someone else. His clients were unquestionably guilty of one very serious offence—they were Scotchmen; but he thought he could satisfy his lordship that that defence was not open to the Corporation, because before they made the contract they had full notice of the fact. Counsel moved on the affidavit of the plaintiffs, who carried on business in Dublin at 5 Talbot Place. Counsel, proceeding, dealt with the particulars of the transaction. Mr. Frame stated that the Improvements Committee agreed to his adding the names of the sureties to his firm's tender. They were requested on the 8th January, 1907, to start the work as soon as possible, and they proceeded to make inquiries about material, and placed orders with some firms, and he bought two large engines at a public auction. The alterations made in their tender were made at the request of the Improvements Committee, who had charge of the matter under the Standing Order. He referred to the meeting of the Corporation of the 11th March, 1907, at which letters were read from his firm, Messrs. Binns, and Mr. John Kelly. He charged and believed that Mr. Kelly, having failed in obtaining the contract from the defendants in consequence of being unable to get security for the carrying out of the work, and having further failed in his efforts with his partner, Mr. Crawford, to get him to bargain with him in reference to the contract, and having succeeded in negotiating terms in his own interests with Messrs. Binns, then proceeded to endeavour to have the Messrs. Binns accepted as contractors in their place, and for that purpose misled them in regard to pipes.

Mr. Ignatius O'Brien, K.C., on behalf of the Corporation, stated there was the decision of the highest tribunal that even if the work were done and accepted, that the absence of the seal of the Corporation was absolutely fatal. There was no document either signed on the one hand or sealed on the other. The person who would order things would be the City Engineer, but he would have no authority until the contract was executed. Messrs. Crawford and Frame were getting £1,250 over the next tender, and on the 4th February the Council considered that they were not getting value for the £1,250, even if the Local Government Board should consent.

The Master of the Rolls—Was it on that ground?

Mr. O'Brien—It was, my lord. The original contract that ought to be accepted under the regulations of the statute was Messrs. Binns. They were the lowest tenderers, and the Local Government Board required that the lowest tender should be accepted, unless the acceptance of some other was shown to be more profitable.

The Master of the Rolls, in giving judgment, said that the defendants had entered into and sealed a contract with the Messrs. Binns for carrying out the main drainage works at Clontarf, so that, literally speaking, it would be idle for him to grant an injunction in the terms prayed for. He should, therefore, be prepared to modify the terms of the notice of motion and restrain the defendants and those acting under the seal of the contract were it not that Mr. O'Brien's arguments had convinced him that whatever might be the truth and honesty of the case, whatever might be the ultimate result of the trial, the legal difficulties in the way of the plaintiffs were so great that he would not be justified in taking the extreme course of granting the drastic remedy of an interlocutory injunction. The overwhelming balance of convenience, having regard to the legal difficulties of the case, was in favour of having the action brought to trial in the ordinary way, and every source of information, and all material evidence submitted to the Court before the Court pronounced a final decision as to the rights of the parties. He reserved the question of costs for the trial of the case.

Belfast Ancient Lights Case.

In the Chancery Division, before Mr. Justice Barton, in the matter of the Scottish Temperance Life Assurance Co., Ltd., v. William Ewing.

Mr. Matheson, K.C., with whom were Mr. W. M. Whitaker, K.C., and Mr. J. M. Whitaker (instructed by

Messrs. Johnstone and Walkington), applied on behalf of the plaintiffs for judgment by consent. The present action arose out of the action brought against the plaintiffs by Mr. Black, of James Street, South, Belfast, in which he claimed an injunction for illegal interference with the ancient lights to his factory by reason of a lofty building which had been erected by the insurance company on an adjoining site which had been previously occupied by Mr. William Ewing. A mandatory injunction had been granted to abate the nuisance, but the Court of Appeal decided that the injury was compensatable by money payment, and in case Mr. Black refused the insurance company's offer of £500 and his costs, they referred the matter to the Chief Clerk to assess the damages. It appeared that when the insurance company purchased the site from Mr. Ewing a covenant was inserted in the deed by which Mr. Ewing agreed to indemnify the company against all claims in respect of light and air. The defendant at first denied his liability, but subsequently a consent was arrived at by which Mr. Ewing admitted his liability in the fullest manner, submitting to a declaration that he was bound to indemnify the plaintiffs against all loss and damage by reason of the injunction in the action brought by Mr. Black, and from the claims of any other persons having on 18th August, 1904, a right to the access of light and air which had been obstructed by the erection of the plaintiff company's buildings. Counsel now asked that this consent should be made a rule of court, and that they should be at liberty to apply when necessary.

Mr. Justice Barton received the consent and made it a rule of court.

LABOURERS' COTTAGES IN CONCRETE.

At the fortnightly meeting of the Trim Rural District Council, on Saturday, Mr. T. Flynn, C.C. (chairman), presiding, the Council had under consideration the making of an improvement scheme for labourers' cottages for several divisions. The Clerk reported that the cost of the cottages on the plan adopted by the Council, with the architects' and other fees, would amount to £190 per cottage, and the Local Government Board would only sanction £185. There was a cottage at the Dublin Exhibition built of concrete, and the cost was about £145. The Right Hon. Lord Langford, D.L., said he did not favour the present system of cottages. He suggested that the new cottages be only one storey high. After a long discussion, this was agreed to, and the Clerk was directed to write for specifications and estimates, and ask the Local Government Board if the Council would be allowed to build the cottages in concrete blocks where there was no stone convenient.

SWEDISH DEAL FOR STREET PAVING.

The Improved Wood Pavement Company, Limited, have just completed 30,000 square yards of creosoted Swedish deal paving in Aldersgate Street, Bishopsgate Street, Park Lane, Piccadilly, and Wellington St., London. The company are now under contract to lay 37,000 square yards of similar material in Charing Cross, Chandos Street, Charing Cross Road, Kensington Road, Knightsbridge, Holborn Circus, and Uxbridge Road. Two of the thoroughfares are now paved with hardwood, but this is to be removed and Swedish deal substituted.

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CONTENTS.

PAGE.

Topical Touches	345
Arklow Harbour Improvements	346
The Royal Institute of the Architects of Ireland	346
Correspondence	349
Our Illustrations	350
Law	353
Labourers' Cottages in Concrete	353

LEADING ARTICLE:—

The Building Trade	354
--------------------	-----

COMMENTS:—

Law and Justice!	356
The Irish Industrial Association	357
Architects' Fees and the Labourers' Cottages	357
Building News	358
The Irish International Exhibition	365
Engineering News	369
A New Gas Circulating Boiler	370
Imports	370

THE BUILDING TRADE.

The building trade is, as is generally known, one of the oldest trades in the world. So far back as the building of the Tower of Babel there must have been something approximating to a building trade, and we are all aware that the disastrous settlements, and other mishaps which attended the building operations in connection with that primeval "skyscraper," were largely due to the absence of an architect's controlling judgment. In ancient Egypt, in times that were until recently pre-historic, the trade must have existed. Later there came those vast monumental structures, still, after the lapse of so many centuries, the wonder and admiration of the world, and of which the late Lord Armstrong once said, that their construction, and the handling of their vast monolithic masses, would have taxed the ingenuity of a modern engineer. Then, during the period of the Captivity, we find there was a strike amongst the hands engaged in the Egyptian brickworks, because of the failure in the supply of straw, without which it was then alleged bricks could not be made. It is an interesting study, with which everyone connected with building is more or less familiar, to trace the progress of the trade through the periods of ancient Greece and Rome, on through the earlier and later mediæval times, when the master builder, originating, according to one theory, in the Guild of the Comacini in Italy, spreading its ramifications all over Northern and Southern Europe, to the period of the Renaissance, when once again the classical ideal in design was glorified, and we find that the architect or designer was frequently a painter or a goldsmith, and so on to modern times. It is a subject full of engrossing thoughts, a close and intimate knowledge of which is well calculated to educate in the highest sense a follower of the Art of Building, whether he be architect, engineer, builder, or artisan, and one which, to the architect at least, is an essential study, unless he be content to be disgracefully ignorant of his calling. The history of the building trade, as we have thus roughly outlined it in a few words, brings us then to the period of the Renaissance, during which John Thorp, Inigo Jones, Wren, and his pupils and successors, Chambers, the brothers Adam; and in Ireland Gandon, Cooley and others, in

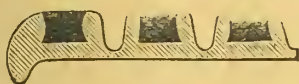
succession, who may be described as architects practically in the modern sense, and differing from the old-time master builder, in succession bring us to the end of the eighteenth century and beginning of the nineteenth, when that marked decadence in all the arts and crafts in these countries began, culminating in the terrible vagaries and banalities of the "Early Victorian" era. From the beginning of that period dates, more or less, the modern contractor as we now know him. In the eighteenth century, in Ireland, the difference between architect and builder does not appear to have been very distinctive, and, of course, it was still later, and not until the development of iron and its increased application to machinery and bridge construction, that the architect and the engineer were differentiated. Sir William Chambers, writing in the latter half of the eighteenth, referred to his work as "Civil Architecture," apparently to distinguish it from military architecture, or engineering, as we should now call it, which was at one time part and parcel of the functions of the architect. At the close of the eighteenth century there were few architects in Ireland, and their efforts appear to have been mainly confined to the design of public or private works of practically first class importance. We find them employed in the design of such great works as the Houses of Parliament, the Four Courts, Custom House, the greater mansions of the nobility, such as Leinster and Powerscourt Houses. That they had any connection with the design or supervision of the numerous plain dwellinghouses and other minor buildings, of which so many were built about that time, is more than doubtful. The nobility and gentry appear to have patronised and directly employed, without the intervention of either builder or architect, such craftsmen as the colony of Italian plaster modellers encouraged to settle in Ireland by the Lord Portarlington of the day, and also their Irish pupils or successors, Bossi and other marble workers, of whom there must have been a most flourishing school in Ireland at the time. The quantity surveyor was, of course, not so much as dreamt of then, and was not germinated until a late period, in fact until well within living memory.

The working craftsman of those days, whether a worker in stone or wood, was better acquainted than his successors with the principles of architectural design and detail, in which he frequently had to originate work, drawing the mouldings and ornaments skilfully and accurately. He had more than a passing acquaintance with "the Orders," and with all the principal classical mouldings. That rare and excellent little work on the Orders, Batty Langley's "Builders' Jewel," was apparently written chiefly for working men.

Until well into the nineteenth century, it was the custom of Irish noblemen and gentlemen to entrust the building of quite important mansions (of which not a few were built during the first forty years of the last century) to master builders without the intervention of an architect. These men, who may be described as the grandfathers or great grandfathers of the present generation of builders, were nearly always skilled craftsmen, and the work they did was, in point of solidity and excellence of construction, of a very high order indeed, as may be seen in the Irish country houses of the period; their capacity in design was poor, and their detail modelled on the brief phase of the neo-Greek revival in the beginning of the century, with occasionally a "dive" into the Gothic taste, the latter with disastrous results, as may be seen in the books as well as the executed work of the period. Notable examples, too, are the churches of the day. The builders of that time generally had an extensive following of tradesmen, skilled and industrious men, earning but meagre wages, and with a poor standard of living, several generations being frequently associated with the same family of builders. The general practice seems to have been for the builder to engage in but one job of importance at a time, and often he and all his staff lived on or near the site. Generally there was a master plasterer with his own staff of men, who did excellent work, but all detail was, of course, very poor stuff and debased compared with the beautiful work of the previous generation. This falling off was, of course, universal, and is one of the most extraordinary phases in the whole history of the

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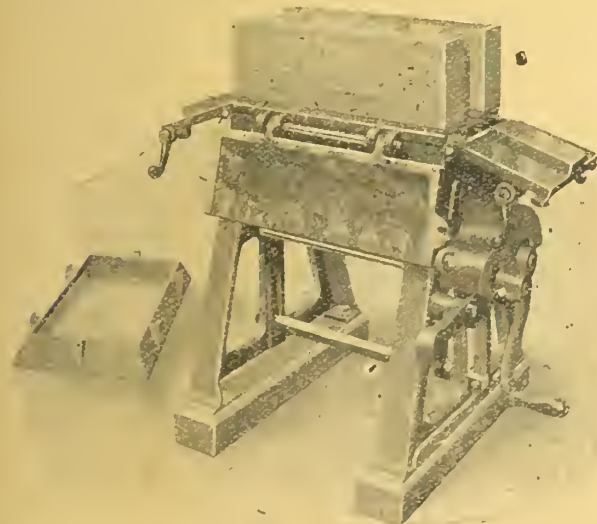
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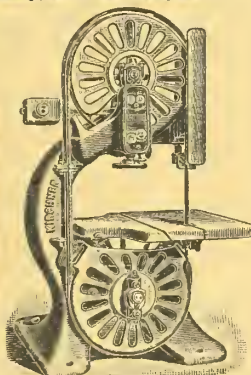
The Pioneer "Junior" Hollow Concrete Block Machine, showing finished Block ready to be removed.

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art of building and design. The builder of the time was content with small profits, and limited operations; wages were very low; trades unions had not become a power; strikes were practically unknown; work was fairly plentiful, but never hurried, and accordingly we get the substantial and well-made joinery and other appurtenances of a house of that day.

Following immediately on this period we find a great development in the profession of architecture in Ireland. Until about 1850 there were many architects in Dublin, their calling well defined and understood, and from thence on for nearly fifty years we have the great wave of Catholic church building, which has not yet entirely ebbed. Contemporaneously, there was a great movement of commercial building activity, banks, insurance offices, and all kinds of business premises sprang up throughout Dublin, and, of course, modern Belfast dates wholly from that period. With this clearly defined separation of the architect's and builder's functions, and the wave of building prosperity, arose the quantity surveyor as quite a latter-day institution, Mr. Benjamin Patterson, still in active practice, being, we believe, the first, or almost the first, quantity surveyor to start in Ireland. Thus was evolved the modern building contractor as we know him, and so he remained for several decades. Now, however, we are face to face with another development, the effect of which upon architects has been frequently discussed; but as regards builders they seem in the main quietly adapting themselves to the altered conditions. This is, of course, true, principally only of the larger contractors—the effect upon the smaller men remains to be seen.

In America, in England, and abroad for the past fifteen years, and more particularly since the beginning of the present century, building construction in design and execution has undergone a revolutionary change. Ferro-concrete, steel frame work, time-saving appliances and methods, the power of the trades unions in increasing the cost of labour, the growing demands of the commercial community for speed, and generally the stress, hurry, and keen competition of the times, have all combined to create entirely new modes of operation, while every day the rivalry of competition for work at the most cutting prices, leaving but the barest margin of profit, has combined with the demands of the workers, impelled development in time and labour-saving devices. This phase of things has not yet spread to any great extent in Ireland, but in the larger towns of England is in full swing. The rebuilding of a large portion of London recently brought into being building companies, who may be described as great contracting corporations, controlling many fully-staffed and distinct departments, an army of workers, and costly and extensive modern labour-saving plant. Such corporations or companies in America frequently undertake both the design and the execution of the work, and in London there are such firms as Messrs. Waring and Gillows, and the Waring White Building Syndicate, Architects, Civil and Constructional, Heating, Lighting, and Electrical Engineers, are enlisted under and controlled by such companies. The great engineering projects of latter days have also called into being companies working on similar lines. The "monster emporiums" in London, such as house furnishers and so forth, have an increasing business in the design and construction of building works and fittings. This is, so far, the only phase of the development which has spread to Ireland. It has been said that the old-time architect is bound to go—that his methods are too slow and cumbersome for modern needs and ideals, while the separate employment of individual experts as consultants has become too slow, involved and costly to be practicable. An example of the "new idea" is seen in the design and building of the new theatre for Mr. Seymour Hicks in London, designed and built by the Waring White Building Corporation, Ltd., and the architectural design is in no way inferior to the average output of the London theatre architect.

The result of these changes will probably not be fully seen in Ireland in our own time, but in England we may be sure a great change will be noticeable in the course of a few years. As we have said, the larger firms of builders will adapt themselves to the altered conditions, and probably benefit thereby; but what will happen to the smaller

builders in the towns is difficult to speculate upon. Will the great firms, with their large capital, immense appliances, and facilities for great despatch, sweep up all the work of any importance, leaving the smaller men to subsist as best as they can on repairs and such like, or possibly extinguish them altogether? Happily such changes come slowly, giving people time to accustom themselves to altered times and altered manners. Meanwhile the two difficulties, close cutting in prices and the labour question, are never without movement for a single day, a movement the seriousness of which can be gauged from the fact that the building trade is by far the largest and most important trade in these countries.

COMMENTS.

Law and Justice!

We are accustomed in Ireland—or, at all events, some of us—to think that we have a monopoly of grievances against law, order, and the working out of British legislation. Our old friend, Harry Hems, however, last week sent us some Exeter papers, as he said, "that we might see what is done in England." Now, we have always looked upon genial "H. H." as the personification of a typical law-abiding English citizen, but even he has, at last, turned and become "a passive resister."—not against an education rate, but against that weird and particularly horribly goading monstrosity known as the income tax, which, with its twin-brother, "free trade," has done so much—the one to encourage thrift amongst our working and middle class population, and the other to further and help our import trade.

It seems that for some months a dispute has been proceeding between Messrs. Harry Hems and Sons, the well-known ecclesiastical sculptors, of Exeter, and the Revenue Authorities, with reference to the Income-tax assessment, as a consequence of which matters were allowed to go to extremities. Some time since a member of the firm was fined a nominal amount for a technical assault on an Inland Revenue official who entered the residence of Mr. Harry Hems, and immediately handed the Bench a guinea for the Mayor's Poor-box. A couple of weeks ago a Revenue official attended with a bailiff, when the latter forced a window with a "jemmy," and distraint was effected. The bailiff was made so comfortable that he was very sorry to leave. He had, indeed, the honour of taking a photograph of the Exeter Cycling Club Committee, who had assembled at the house to make arrangements for the sports. Mr. F. J. Helmore, auctioneer, of Crediton, was also made at home when he called to make arrangements for the auction. Mr. Hems drafted a catalogue in his characteristic style, and at the "auction" a large audience assembled to see the fun. An announcement was prominent that anyone entering the house would be shot, and there was a good laugh at the man in possession, who sat at a window looking supremely happy. Mr. Helmore entered into the spirit of the whole thing, and pleasantly opened the proceedings, after which Mr. Harry Hems made a speech inveighing against the manner in which income-tax is collected. Turning to the auctioneer, Mr. Hems asked, "Am I allowed to bid?" "Yes," said Mr. Helmore. "Then, I bid you good afternoon!" and off he went. The first lot was a lead cistern bearing the date 1696. This was bought in for the owner, as were all the remaining articles. Lot two, appropriately enough, was a life-sized statue of St. Matthew, the taxgatherer, and the next was a figure of Leofric, first Bishop of Exeter. Then came the old stocks which formerly stood in the churchyard at Heavitree, and next the Commandments on two tables of stone, which were followed by the identical "jemmy" used in forcing an entrance on the occasion of the distress being levied. The amount thus realised not satisfying the authorities, Mr. Hems' bulldog, with a "long and splendid pedigree," was duly offered, as was the "City flag," stated to be the one sent by

Exeter to the Chicago Exhibition of 1893, which was said to have been rescued from the fire on that occasion by Mr. Hems, and the possession of which greatly exercised Exonians for many a day after the Exhibition had concluded. The last lot consisted of "three second-hand tombstones, suitable for the graves of Income-tax Commissioners or other Revenue Officials." Thus ended the auction, which gave huge enjoyment to many well-known Exonians.

Joking apart, we sincerely wish that someone, and who more fitted than Harry Hems! might receive a commission to erect tombs with suitable epitaphs—if not to the Commissioners, then to the iniquitous law they administer, and as a memorial to the oppressive fashion in which it is gathered. None of the Exeter auctioneers would hold the auction.

The Irish Industrial Association.

The Irish Industrial Association has now for some considerable time past been doing excellent work, first, by directing the attention of the public to the possibilities of purchasing Irish produced or manufactured articles; and next, by sharpening the wits of those whom *The Leader* calls the "dark brotherhood"—those Irish manufacturers who persistently hide their light under a bushel, or else deter custom by dilatory methods.

At the last meeting an interesting communication was made by one of the members in quoting from an article by Father Meehan, C.C., in a contemporary magazine, in which he declared of Ireland that: "She has marble, for instance, in abundance, and she annually imports about £25,000 worth. She has hundreds and hundreds of millions of tons of iron-stone, and yet her yearly bill for what may be called iron-mongery, that is for foreign iron, in various shapes and in many degrees of refinement, is over £4,000,000. Not a cwt. of her own ore does she manufacture." Sad to say, the Church has been a prime offender in this respect—stained glass and marble.

In addition, the Secretary read the following letter from Mr. A. E. Mills, A.M.I.C.E., in reference to the matter discussed at the last meeting as to the difficulty of getting Irish-made cement. The letter read:—

I read with great interest in the evening papers that the subject of Irish-made Portland cement was considered at your meeting, and as the question is a very important one I have pleasure in informing you that I am forming a company to equip a works in the neighbourhood of Dublin for manufacturing, on most modern methods, Portland cement of the best quality, and expect shortly to commence the building operations, and soon to be in a position to supply to those requiring Portland cement for their building or other works.

The Association is daily growing in importance, and deserves well of all Irishmen.

Architects' Fees and the Labourers Acts.

We publish in this issue a statement of the correspondence between the Institute of Architects and the Local Government Board on the subject of architects' fees. We cannot help still holding that the intervention of the Institute came rather late in the day. The meeting summoned to consider the matter the other day was a failure, as practically only the Council attended. The matter has now gone too far to be remedied, and may fairly be dropped.

Protest should, however, be made against the violation of the spirit of the Act by the sanctioning of the appointment of gentlemen who are no more architects than they are admirals. The worst class of cases are those in which men, in the first instance, fail to satisfy the L.G.B. that they are possessed of even that modicum of knowledge necessary to qualify them under the Act, but are subsequently passed. The Local Government Board refuse, very properly, to sanction their appointment; then, under local pressure, the Board send down, at the expense of the public, an inspector specially to examine such gentlemen, who thereupon are passed into the ranks of architects; armed with a Government

diploma. If the L.G.B. wish to meet such cases, a special examination of sufficiently practical and stringent character to really test their capacity should be held by the Civil Service Commissioners, and a publicly known standard laid down. The present form of examination is a farce, and a fraud alike upon the ratepayer and the profession. If the Local Government Board wish simply to fall in with the views of the local Councils, then such men who fail to fulfil the requirements of the Act might be permitted to assume control of the schemes as "superintending clerks of works," but an important Government Department ought not to lend itself to dubbing such people with the old and honourable title of architect or engineer, for it is no better than a fraud.



APPOINTMENT OF ARCHITECT AT BAILIEBOROUGH.

In the House of Commons on Tuesday, Mr. Samuel Young asked the Chief Secretary whether he was aware that the Local Government Board for Ireland have, without assigning any specific reason for their action, twice refused to sanction the appointment by the Bailieborough Rural District Council of Mr. Thomas Daniel as architect to their improvement scheme under the Labourers' Acts; whether he was aware that Mr. Daniel, under a resolution appointing him as architect to the Council, carried through four improvement schemes to the satisfaction of his Council and without objection or complaint from the Local Government Board; whether he was recently appointed architect to the Council in connection with repairs to existing cottages and for other purposes, with the consent of the Local Government Board; whether he was aware that a medical certificate of Mr. Daniel's physical fitness had been sent to the Board; and whether he would see his way to ask the Board to reconsider their decision.

Mr. Birrell—The Local Government Board were unable to approve of Mr. Daniel's appointment because he failed, when called upon to furnish evidence that he possesses the qualifications necessary to enable him to discharge all the duties which would devolve upon him, and the Board have so informed the Rural District Council. The Act of last year requires the Board to give their approval of such appointments. It is not the fact that the Board have made no complaint regarding the work carried out under Mr. Daniel's supervision in former schemes. Mr. Daniel has recently been appointed by the Council to supervise the repairs of cottages already built, but the Board's approval is not required in such case. The Board have been furnished with a medical certificate as to Mr. Daniel's physical fitness for the post of architect. If Mr. Daniel is willing to submit himself for examination, the Board will arrange for his examination.



BRITISH AND IRISH TRADES UNIONS.

The trade unions of Great Britain and Ireland, according to the latest official return, issued last week, had an accumulated reserve of almost five-and-a-half millions sterling. These figures come down only to December, 1905; they exceed any previous year's total. The membership was 1,567,519; the year's income, £2,557,180, and the expenditure, almost as great, reached £2,506,024.



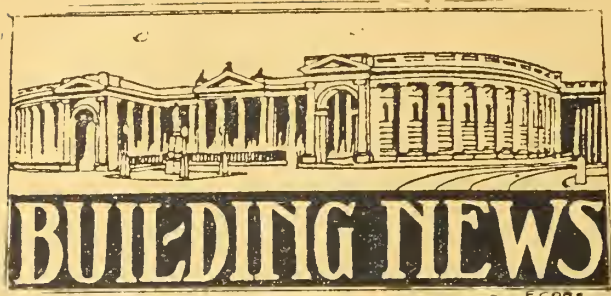
A TRADE CHANGE.

Mr. James Cornes has, by agreement, severed his connection with Ellkay and Cornes, Limited. The company will continue to carry on business as heretofore, and (when sanctioned by the Board of Trade) under the style of Ellkay and Co., Ltd., at 59 Holborn Viaduct, London, E.C.

The "Model Cottager," range and fire boiler combination, will henceforth only be supplied by Mr. Cornes, who will carry on business as Cornes and Haighton, at Norton House, Leek, and Metron Chambers, 244 High Holborn, London, W.C.

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Athenry.—Agricultural College at Athenry.—On Saturday last Professor Campbell, Mr. Anthony Scott, and a number of other officials from the Department of Agriculture visited the Agricultural Station at Athenry for the purpose of taking the initial steps for the building of the new Agricultural College which, it is estimated, will cost £27,000. The operations for building will be commenced immediately, and the building will be superb in every respect, sleeping apartments, laboratories, chemical and scientific, etc., will be all up-to-date. A huge reservoir has been erected, 70 feet high, capable of containing 20,000 gallons of water, which will be utilised for the College buildings and also for every part of the farm where required. Electric light will also be used throughout all the buildings. In the near future it may be possible to get both water and electric light for the town of Athenry by an arrangement with the Agricultural Board. Dairy on a large scale it is contemplated also to establish on lines similar to Glasnevin, where a number of farmers' daughters will have an opportunity of getting the much-desired diploma. A poultry fattening station will probably form another branch of the Department's activity in the future, as also fruit preserving and jam making.

Bawnboy.—The Board of Guardians will, on 20th May, receive tenders for the erection of the dispensary and dispensary residence at Newtowngore, in accordance with the plans and specifications prepared by Mr. O'Brien, C.E.

Ballinasloe.—Mr. James H. Webb, M.R.I.A.I., Clare Street, Dublin, has just designed a new post office and lodge at Woodlawn, near Ballinasloe, for Lord Ashtown. Considerable alterations have also been carried out, under the supervision of Mr. Webb, at Lord Ashtown's residence owing to the recent fire.

Ballybay.—Tenders will shortly be invited for carrying out the Ballybay Sewage Works according to the designs and specification of Mr. F. Bergin, B.E., 36 Westmoreland Street, Dublin. An inquiry will shortly be held by Mr. Price, L.G.B., for an application by the Urban Council for a loan to carry out a complete system of sewage for this town.

Birr.—The sewage works are now approaching completion. In carrying out same it was necessary to drill a tunnel of 2,000 feet; also make some very deep cuttings. The work has been carried out by Messrs. Hogan and Gault, under the supervision of Mr. Bergin, B.E., Dublin.

Belfast.—City Hall Architect's Fees.—At the adjourned quarterly meeting of the Belfast Corporation last week, some questions were asked in regard to the issuing of a writ by Sir Brumwell Thomas, the architect of the New City Hall, for £13,000 for fees. The Lord Mayor, in replying, said that the matter had been left to a sub-committee to see if an amicable settlement were possible. A writ had been served, and he imagined that in time it would go into the courts of law. So far as the sub-committee were concerned, they had not been able to come to any satisfactory agreement with the architect. Councillor Wheeler declared that there were signs of cracking in the City Hall, and they should ascertain who was responsible. He would like to know if this question had been brought before counsel on behalf of the Corporation. The Lord Mayor said the case had been put before counsel, and he thought they must leave the matter in the lawyer's hands. Councillor McCammond said some of the cracks or fractures in the front of the building were very bad.

Belfast.—The new furniture show-rooms in Library Street of Messrs. Robert Watson and Co. (of Belfast), Ltd., designed by Mr. W. J. Fennell, F.R.I.B.A., 2 Wellington Place, have now been completed and handed over. The building, which is three storeys in height, on a piled foundation, and provision for two further storeys, is built of Belfast bricks, with Laganvale facing bricks and Dumfries stone-dressings, and rises off a base of polished Newry granite. It has a frontage to Library Street of 65 feet, and extends back about 200 feet, where it joins into the Donegall Street premises of the firm, forming an arcade right through from street to street. The shop

front, which goes up two storeys, is entirely of teakwood, and all the windows throughout are glazed with polished plate glass. The ground floor is entirely laid with wood-block flooring supplied by Messrs. Ebner, and secured to the concrete with their patent channels. The roof is a flat one, with an ornamental parapet, and stone coping round, and is covered with vulcanite manufactured and laid by the Laganvale Vulcanite Company, Ltd., Belfast. The building is provided with an electric hoist, and is lighted throughout with electric light, and is fitted with the latest and most perfect sanitary and ventilating apparatus. The general contractor for the building was Mr. James Kidd, Antrim Road. The heating and sanitary contractors were Messrs. S. N. Gray and Son, Dublin Road, and the electrical engineers Messrs. Wm. Coates and Son.

The tender of Messrs. Mellowes and Co., Limited, sanitary engineers, Sheffield and London, has been accepted for the new underground convenience at front of new City Hall for the Belfast Corporation. The contractors have just commenced work, and it is expected to be completed early in the summer.

Tenders are at present being considered for alterations and additions to the premises of Messrs. James Lindsay and Co., Limited, drapers, Donegall Place. The architect is Mr. S. Stevenson, Royal Avenue.

Mr. John Fegan, builder, York Road, has secured the contract for additions to the Good Shepherd Laundry, etc., Ballynafeigh. The architects are Messrs. Byrne and Son, Dublin.

Messrs. Blackwood and Jury are at present preparing plans for new Episcopal Church at Dunmurry, in connection with Drumbeg parish.

Bonniconlan.—Tenders are invited for the reconstruction of the parish church of Banniconlan, Ballina, Co. Mayo, in accordance with plans, etc., prepared by Messrs. Doolin, Butler and Donnelly, Dawson Chambers, Dublin. Applications to be addressed to the Rev. A. Calloghan, P.P.

Coleraine.—At a meeting of the Proposals Committee the principal business was to consider tenders for the repairing, altering, and making additions to Coleraine Courthouse at an expense not to exceed £2,886, and to be defrayed by the county at large, and the lowest amounted to £3,234 12s. 4d. The next lowest was £4,188, and the others were for £4,396, £4,493, £4,565, £4,653 4s. 8d. and £4,970 13s. 3d. Mr. Lane, solicitor to the Council, said the lowest tender exceeded the amount specified by the County Council by almost £500, and it was almost £1,000 lower than the next lowest tender. Mr. Boddie, County Surveyor, said the tenders exceeded the specified sum, and the work was now an untendered work. He therefore, thought it would be competent for the County Council to refer the matter back to the Proposals Committee for reconsideration. Subsequently, at the meeting of the County Council, it was decided, on the motion of Mr. H. T. Barrie, M.P., that the matter be put into the hands of the County Surveyor to have the work carried out, and a committee was appointed to assist the county surveyor.

Clontarf.—The new Methodist Church, Clontarf, which has been erected by Messrs. Collin Bros., East Wall, according to the plans and specification of Messrs. Wm. Mitchell and Son, 10 Stephen's Green, N., will shortly be opened. The new schools in connection with above will shortly be commenced by the same contractors. Messrs. Musgrave and Co., Ltd., Belfast, have in hands the heating arrangements for church and schools.

Cootehill.—Cost of Labourers' Cottages.—At the monthly meeting of the Cootehill Rural District Council, the Clerk submitted a draft scheme for the cottages to be erected under the 1906 Labourers Acts. Mr. Keelaghan, engineer, said he was estimating £140 for the building of each cottage. It was the desire of the Local Government Board to have them erected for £130 each, but he could not draw a plan to suit that amount. Mr. Hennessy said the average cost of acquiring land, building cottages, and paying all incidental expenses in the last scheme was £212 per house. A special meeting to consider above has been summoned.

Carrickfergus.—Mr. James Kidd, builder, Belfast, has secured the work of restoring the Post Office building, partially destroyed by fire last month.

Cork.—Tenders were received for building two houses on the Barrymore estate. The architect is Mr. Arthur Hill, Cork.

Co. Meath.—Tenders have been invited for alterations and additions to Mr. Charles Reilly's house, Piercetown, Kells, according to the designs and specifications of Mr. Anthony Scott.

Co. Wexford.—The tender of R. E. Mellon, Brighton Building and Engineering Works, Rathgar, Dublin, has been accepted by Lord Templemore for the building of a

new wing, 130 feet by 45 feet wide, at Dunbrody Park, Arthurstown, as well as extensive alterations and improvements to the existing buildings, including new drainage, septic tank and filter beds, plumbing, heating, and painting. The work will take about eighteen months to carry out, and will give considerable employment in the neighbourhood.

Dalkey.—Mr. Martin Dixon, Dalkey, is at present executing alterations and additions to Victoria House, Dalkey, according to the plans of Mr. Beckett, 97 Stephen's Green, S., Dublin.

Downpatrick.—Messrs. Blackwood and Jury have plans in hands for a Carnegie Library at Downpatrick; also for alterations and additions to the Ulster Bank premises, Downpatrick.

Dublin.—Mr. Toole, Upper Dorset-street, has secured the contract for the building of new sacristies at St. Michan's Church. The plans and specification have been prepared by Messrs. Ashlin and Coleman, and the quantities by Mr. D. W. Morris.

Additions are being made to the Monastery of St. Alphonsus, Drumcondra. Messrs. Jas. Donovan and Son, Lower Hatch-street, are the contractors. The plans and specifications are by Messrs. Ashlin and Coleman, 7 Dawson-street, Dublin, and Mr. D. W. Morris, 68 Harcourt-street, Dublin, is the surveyor.

No. 17 Talbot-street is in course of reconstruction. The contractors are Messrs. Farmer Bros., and the plans and specifications by Mr. F. W. Higginbotham, M.Inst.C.E., 9 Lower Sackville-street, Dublin.

Tenders are invited for the reconstruction of premises at Vernon-avenue, Clontarf, according to plans and specification of Mr. F. W. Higginbotham, who has also prepared the designs for a new street at Clonliffe, now in course of construction by Messrs. Whelan Bros., contractors.

At the last meeting of the North Dublin Rural District Council for financial business, Mr. J. O'Neill, J.P., presided. A letter was read *re* labourers' cottages, which stated:—"I am directed by the L.G.B. for Ireland to state that they have sanctioned a loan for £10,140 for the purpose of enabling the N.D.R.D. Council to carry out the improvement scheme authorised by the N.D.R.D. (unopposed) Labourers Order, 1907, the first instalment of the loan to be £2,500, and the Board will make the necessary recommendation in the matter to the Irish Land Commission in pursuance of Section 16 of the Labourers (Ireland) Act, 1906." This communication, therefore, authorises the building of cottages on the £105 scale suggested by the Council.

Messrs. Lawson and Co., Stephen's Green, are at present rebuilding 52 Stafford Street, Dublin, for Messrs. Lawson, Wilson and Co. The plans and specifications have been prepared by Mr. J. H. Webb, Clare Street, Dublin.

Mr. R. E. Mellon, contractor, Rathgar, is at present carrying out improvements and renovations to 27 South Anne Street, according to the designs of Mr. Beckett, 97 Stephen's Green, South, Dublin.

Messrs. A. Hull and Co., Ringsend, are at present erecting a store for Messrs. Bewley and Draper, Henry Street, according to the designs of Messrs. Wm. Mitchell and Son, 10 Stephen's Green, North, Dublin.

Last week his Excellency the Lord Lieutenant performed the ceremony of the opening of the new Nurses' Home at the Meath Hospital and Co. Dublin Infirmary. The building was erected according to plans prepared by Mr. J. F. Fuller, F.S.A., architect to the hospital, and the work was carried out under his supervision by Mr. John Pemberton, contractor. It contains accommodation for thirty nurses and fourteen servants, and is provided with everything necessary for their comfort. The sum of £5,306 15s. has been paid on account, leaving a balance due of about £600. A sum of over £250 and many useful articles have been contributed. Its doors were first opened to the suffering poor on March 2nd, 1753, and that twenty years later it was constituted by Act of Parliament the County Dublin Infirmary. The original Meath Hospital stood in the Coombe, and was built on the site of what is now known as the Coombe Lying-in Hospital. The present building dates from the year 1822, in which year it was opened for the reception of patients. The hospital stands on a classic ground, the "Naboth's Vineyard" of Dean Swift. The old brick wall which forms the northern boundary of the hospital grounds was built under the personal supervision of the great Dean himself, and the doorways which communicated with the other Deanery grounds may still be traced.

Dromore.—Mr. J. Graham, builder, Dromore, has secured the contract for building weaving factory, and addition to Messrs. Murphy and Stevenson's premises. The architects are Messrs. Hobart and Heron, Scottish

Provident Buildings, Belfast. The estimated cost is under £2,000.

Killarney.—Mr. George F. Beckett, M.R.I.A.I., 97 Stephen's Green, Dublin, is at present preparing plans and specifications for a proposed new Methodist Church and Manse at Killarney.

Kanturk.—Extraordinary Generosity.—The Council considered the particular plan of labourers' cottages to adopt for the scheme at present being formulated in the rural district. After some discussion it was decided, on the recommendation of the architect, Mr. Linehan, to adopt the plan of cottage marked No. 1, which secured the first prize in the Local Government Board competition. Mr. John D. O'Connor's notice of motion to fix the remuneration for their engineer, Mr. Jerh. Linehan, in connection with the new schemes of cottages, then came up for consideration. Mr. O'Connor said there was no necessity to make any elaborate statement in connection with the matter. They were all aware of the matter in which Mr. Linehan had performed his difficult and responsible duties during the years they had him in their employment. They never before received such absolute satisfaction—that was an admitted fact. The manner in which he carried out the erection of the last scheme of cottages was highly creditable to himself, and most satisfactory to the Council and the ratepayers in general. Without exaggeration, he could say that his appointment resulted in the saving of hundreds of pounds to the rates. Mr. Linehan had been in receipt of a salary of £2 5s. per week, to which 15s. a week was added for car hire. He (Mr. O'Connor) was surprised to find that since last September that 15s. per week had been discontinued. Mr. Linehan had been practical, earnest, energetic, and competent in the discharge of his duties, and they should take all these matters into consideration in fixing his future remuneration. He had great pleasure in proposing that Mr. Linehan, for carrying out the scheme, be paid a salary of 50s. per week, with an allowance of £2 weekly for car hire—£4 10s. per week in all. The Council, of course, were well aware that in carrying out that scheme it would be necessary for their engineer to personally supervise the building of all the cottages, which would entail constant and laborious journeys all over the rural district, which they all knew was one of the largest in Munster. As he knew, from experience, he would want to keep two horses for the work. Mr. John L. O'Shea seconded the proposition, which was carried without a dissentient voice.

Letterkenny.—The opening service of the new Presbyterian Church was conducted recently. The new church is situate on the Main-street. The new building is a treatment of the late perpendicular Gothic adapted to suit the situation. The main front, which is very wide, is composed of a centre gable, in the apex of which is placed a traceried panel, and under this a wide mullioned window, with traceried head, which is the main feature of the front. The window is of stained glass, specially designed, with crest and motto of the Church inscribed on it. On the right is a square tower, rising to the height of 36 feet, terminating with battlements and parapet. The whole front is built of a local dark blue stone, relieved by moulded concrete dressings of a light colour. The remaining outside portion is built of cast concrete, moulded and finished a smooth ashlar, relieved with quoins and buttresses of rock faced blocks, with chiselled margins. The area is enclosed with an effective treatment of plinth and wrought-iron railing and gates, the iron work being carried out by Mr. David Wallace, iron foundry, Letterkenny. The buildings are heated by hot water on the low pressure system by Messrs. Lowden and Co., Belfast, who also carried out the plumbing and gasfitting. Particular attention has been paid to these fittings, the main light of the church being provided by four beautiful coronas, suspended from the roof with inverted incandescent burners. The total cost of the building is about £3,300.

Lurgan.—The Lurgan Board of Guardians invite tenders from competent sanitary engineers to superintend the carrying out of a sewerage scheme at the workhouse, and preparing the necessary plans and specifications. Tenders close 10 a.m. May 23rd.

Monaghan.—It has been decided to build a new Young Women's C.A. hall in Monaghan for the town and district. The Right Hon. Lord Rossmore has kindly given the site for same as well as a subscription.

Nenagh.—The directors of the Nenagh Gas Consumers' Company will, at their meeting held at works office, Thursday, 6th June, receive proposals for carrying out

alterations and repairs to works according to plans and specification to be seen at works.

Newry.—The Newry No. 2 Rural District Council have made an improvement scheme in pursuance of the Labourers Acts. The sections of the Rural District to which the scheme relates consist of the district electoral divisions of Ballybot, Ballymoyer, Belleek, Camlough, Forkhill, Jonesborough, Killeavy, Lathbirget, Mountnorris, Mullaglass, Poyntzpass, and Tullyhappy, and the estimated cost of the scheme is £4,440.

Portrush.—Extensive alterations are in progress, or have just been effected, in some of the principal business premises in Portrush. The drapery establishment of Miss Boggs, in Main-street, has been reconstructed, and is now one of the most complete and accommodating shops in town. Mr. J. W. McCallum, U.D.C., and Mr. Thomas Fleming, shoemaker, are also making enlargements to meet the requirements of an increasing trade, and Mr. William Markland has made additions and improvements to the Londonderry Hotel. Other improvements and enlargements are being carried out at Quay Head. Mr. Harpur Davison, J.P., has erected a block of small houses on the site of the old and disused market yard, and new houses have also been built at Antrim Gardens, Ramore Head, and Coleraine-road, not to speak of the colony which is in course of erection at Dhu Varren.

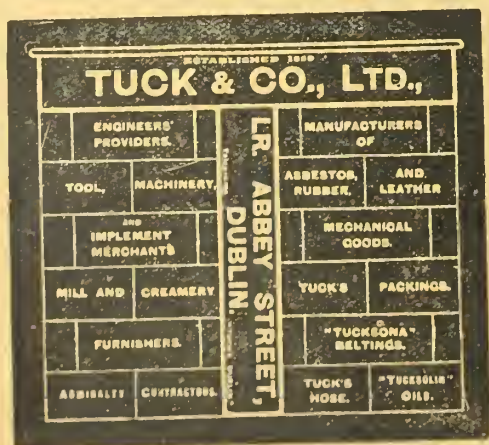
Scarva.—Tenders are at present being invited from local firms for the building of a new Orange Hall, to the drawing and specification of Mr. Reside, Architect.

Tuam.—Appointment of Engineers.—A letter was read from the L.G.B. stating that they had had before them the testimonials submitted by Messrs. Newell and Mannion, who were appointed as engineers by the Council in connection with the improvement scheme which is being formulated by them under the Labourers Acts, and remarking that the testimonials in question did not afford sufficient evidence that either of these persons, and especially Mr. Mannion, possessed the requisite qualifications for the position of Engineer under the Acts. They would, however, be prepared to arrange for an examination by one of their engineering staff at an early date in case Messrs. Newell and Mannion were willing to submit themselves for examination pursuant to Rule 50 (f) of the Labourers (Ireland) Order, 1906. Mr. McDonagh (clerk) said that Messrs. Newell and Mannion consented to be examined, but the examiner had not arrived yet.

Whitehead.—Tenders are invited for the building of shop and post office. The architect is Mr. C. McAllister, Whitehall Buildings, Ann Street, Belfast.

Messrs. Robert Corry, Ltd., contractors, Belfast, have secured the contract for an addition to Whiteabbey Mills. Mr. S. Stevenson, Royal Avenue, Belfast, is the architect.

Improvement schemes in connection with the Labourers Acts have been adopted by the following Rural Councils:—Roscrea No. 3, Ballinasloe No. 1, Ballymore, Glenamaddy, Croom, Edenderry No. 3, Roscrea No. 2, Listowel, Roscrea No. 1, Gortnaboe, Athlone, Oldcastle, Naas No. 1, Monaghan, Donegal.



SOCIETY OF ARCHITECTS.

Registration.—The Labourers Act.

The twenty-third annual dinner was held on April 18th, at De Keyser's Royal Hotel, Victoria Embankment, E.C. The President (Mr. Albert E. Pridmore) occupied the chair, and the company numbered about 150.

Mr. L. A. Atherley-Jones, K.C., M.P., in proposing the toast of the evening, said that an architect needed two qualities in the conduct of his profession. That of art, which rivalled the achievements of the sculptor, and that of utility, which descended to the scientific level of the sanitary inspector. It was the object of the Society of Architects to unite these two ideals, and for that purpose it had drawn up the Architects Registration Bill, which he had had the honour of promoting in the House for many years. He regretted that the Bill had not met with the reception it deserved, but the day for private members' Bills was passed. He would, however, do all in his power to enable it to become law. He thought there was perhaps a healthier feeling in the House of Commons at the present time than there had been in the past, and that possibly a time would come when the unofficial members' Bill would receive due attention, and not simply ordered to be printed and then forgotten. If they could only arouse the legislature to a conception of their duties towards the public in this direction, and could induce that great kindred institution, the R.I.B.A., to enter into generous rivalry with them, they might then secure the passage of the measure.

In reply, Mr. Pridmore (President of the Society), said that twenty-three years had passed since a small body of architects banded themselves together for the purpose of securing the passage of a Bill for the registration of members of the profession. That was the beginning of the Society, which now had 900 members, with branches in a great number of places, including South Africa. The Committee were at the present time dealing with a comprehensive scheme of architectural education, and it was hoped that great advantages would be secured to the students, and especially those who did not live in the metropolis. As to the Bill, the Society was determined to persist until the measure was placed on the Statute Book. The idea was to consolidate the profession, and public opinion was being educated. It would be to the benefit of the whole community. Last year, also, they had the pleasure of meeting Mr. Bryce, then a member of the Government and now Ambassador at Washington, at their annual dinner, and they felt he had given them a first instalment of registration when he introduced a clause in the Irish Labourers Act, providing that all persons appointed to carry out architectural work for local authorities should satisfy the Local Government Board as to their qualifications for the post.

The following is a copy of a letter received from Mr. Bryce, British Ambassador at Washington, in reply to the Council's letter of congratulation on his appointment:—

"BRITISH EMBASSY, WASHINGTON,

"March 7th, 1907.

"DEAR SIR,—Pray convey to the Council of the Society of Architects my cordial thanks for the good wishes which they have been kind enough to send me on the occasion of my undertaking the duties of British Ambassador at Washington. I appreciate most highly the friendly greetings of so eminent a body, in whose work I am so heartily interested.

"Believe me, faithfully yours,

"JAMES BRYCE.

"The Secretary,

"Society of Architects."

COATOSTONE.

We have received from the Coatostone Decoration Co., of 77 Mortimer Street, London, W., some particulars of their specialities. Coatostone is a composition which may be applied to the face of plaster, cement, wood, iron, or other materials, to produce the effect of natural stone. It may also be applied to brick walls in one coat, in lieu of roughcast, and an excellent effect may be produced in this way. It adheres splendidly to corrugated iron, and should find a ready use as a means of making that unattractive and yet useful material more pleasing from an artistic standpoint.

ENGINEERING SECTION.

THE IRISH INTERNATIONAL EXHIBITION.

SOME IMPRESSIONS OF THE PALACE OF MECHANICAL ARTS.

That the Irishman is the proud possessor of an artistic temperament, to the utter exclusion of all things practical, is a fixed idea in the minds of, perhaps, three out of four "foreigners." We, in this little island, are credited with a keen appreciation of music, painting, and sculpture, and a pretty turn for poetry. But when it comes to a question of digging amongst the dry bones of commerce, when any thought has to be translated into those prosaic details which are unfortunately associated with mercantile pursuits, then, according to the popular notion, we have to stand aside. This generality is not always understood to apply to the Northern province.

The huge enterprise which was recently opened at Herbert Park affords another instance of how liable the man in the street is to err in his deductions. Passing through the main entrance at Ballsbridge, crossing the covered bridge over Clyde Lane, the visitor finds himself in a spacious entrance hall, and there confronting him is an embodiment of the guardian spirit of the Exhibition, the first evidence of the artistic enterprise of the people, a statue of Erin, beside her a wolf-hound. The visitor should not stay to criticise this work, founded apparently on the statue of Liberty which watches over the entrance to New York Harbour. With left arm uplifted as surely no arm was ever yet naturally held, with features, robe, and faithful wolf-hound all in crudest detail, the visitor should charitably consider this to be an *impressionist* statue, and pass hurriedly on through the grand central hall, heeding not the subtle seductiveness of the band, or the more glaring attraction of the obtrusive bars. He will then find himself in the main walk, and on his left, over 900 feet from the Morehampton Road entrance and filling the intervening space, he will see the Palace of Mechanical Arts. Externally, as becomes a building erected for such practical exhibits, the design is simple, with plain spaces relieved at intervals by bold doorways, and surmounted by a deep Doric frieze. His second illusion will disappear when he enters, for he will find a space of over two acres crowded with machinery or its products. Fly wheels, pistons, belts and presses are to be seen in motion, apparently all in confusion, yet a closer survey shows how carefully each section is planned, so that it may be comfortably inspected, and, crowning triumph of engineering skill, it is all *noiseless*.

The hall has been arranged in four sub-divisions, dealing with transportation, manufactures, machinery in motion, and the electric lighting and power plant. In the transportation section are to be seen models of steamships and railway rolling stock, many of which will, perhaps, be recognised as old acquaintances by the frequenter of former exhibitions. But the engines and carriages of the leading Irish railways, and the huge bogie car exhibited by the Dublin United Tramways Company, well repay the closer and more detailed inspection which is here possible, and it will doubtless surprise many of our guests from across the water (and probably some from nearer home) to learn that these have been entirely constructed in this country. Right well they look, spick and span in their new paint, and able to bear comparison with any similar types in the Kingdom.

But system is necessary if even the chief exhibits are to be dealt with, for in this hall is to be seen the manufacture of many things, from a jam-puff to the generation of 1,500 k.w. of electricity. The machinery for the latter purpose may be said to dominate the remainder, and is the first to meet the eye on entering the hall. The importance of the plant is obvious when it is considered that it is responsible for the major part of the external and internal illumination of all the buildings and for the power used in the remainder of the hall. Opposite the doorway is a triple expansion high-speed engine by Coombe, Barbour and Co. driving a direct coupled Westinghouse generator, running at 333 r.p.m., with an output of 1,660 amperes at 230 volts. Beyond this is a slow speed set consisting of a Coombe, Barbour cross compound engine, with Corliss valve gear, driving a Westinghouse generator at 90 r.p.m. with an output of 550 amperes at 500 volts. This set, with the huge fly-wheel sentinelled on either side by the high and low pressure cylinders, the patent valve gear and the connecting inspection bridge, is one of the most prominent features in the hall.

Messrs. Workman, Yeames and Co., Ltd., of Belfast, are represented by two compound steam engines, direct coupled to four-pole dynamos by the General Electric Co., Ltd. The engines work at a steam pressure of 150 lbs., and the generators run at 550 r.p.m. with a voltage of 460 and 220 respectively. The steam for these engines is provided in the boiler house adjoining, in which the whole of the necessary plant has been installed by Messrs. Babcock and Wilcox, of London. It consists of three of their well-known patent water tube boilers, working usually at a pressure of 150 lbs. per sq. inch. Each boiler has a heating surface of 3,580 square feet and is capable of evaporating 12,000 lbs. of water per hour. In the limits of this article it is impossible to particularise, and the many admirable details of these boilers must be passed over, but the method of feeding the furnaces automatically by the mechanical chain grate stoker will well repay inspection. It is a labour-saving device, and enables the furnaces to be replenished evenly, the fuel, being gradually drawn from the front to the back, is thoroughly exhausted, and methods are adopted by means of which bituminous coal may be used without smoke. No firing tools are required, as the action of the grate is entirely self-cleaning, and the fire needs no attention. The fuel is fed from hoppers over the whole width of the grate, its depth being regulated by a door which can be raised or lowered at will. Induced draught is obtained by means of two Musgrave fans, one actuated by an electric motor and the other by a direct coupled steam engine; these are situated to the left of the boiler plant, as are also the two direct acting feed water pumps. There is no condensing apparatus; the exhaust steam is, however, utilised in raising the temperature of the feed water approximately to boiling point by means of a Babcock and Wilcox patent. In order to inspect the furnaces small chambers are formed at the side; the visitor is thereby enabled to follow the gradual consumption of the fuel from the hopper until it falls over, as clean ash and clinker, into the pit at the rear.

Steam is, however, not the only motive power, for at the entrance to the boiler house is to be seen a Crossley "Otto" gas engine, of single-cylinder type, developing 175 b.h.p. when running on Town's gas. The engine is fitted with magneto-ignition and compressed air starter, and is used in connection with a 120 k.w. generator. The National Gas Co., Ltd., of Ashton-under-Lyne, have also installed a gas engine, the size of which alone is bound to attract attention. It is of the twin-cylinder type, of a capacity of 350 b.h.p., and runs at a speed of 210 r.p.m. It also has electric ignition and a compressed air starter and is direct coupled to a multipolar generator, running at a speed of 210 r.p.m., and having an output of 900 amperes at 240 volts. This dynamo was manufactured by Siemens Bros., Ltd., of London, and the set forms an important unit in connection with the lighting and power installation.

It may be imagined that Messrs. Coates and Son, Ltd., the electrical firm which carried out the whole installation for the Exhibition Executive, had no easy task to bring the various sets of generators into line, so that each might produce the best result, and a 220 volts current has been adopted for general lighting and power, 460 volts for the flame arc lamps, and 500 volts for the external illumination which forms such an impressive feature of the exhibition after dusk. The lines of the Grand Central Palace and its dome are picked out in red and white lamps, 6,000 of each being used in this building alone, the huge change-over switch being placed in the Central Hall. It may be of interest to note that the incandescent lamps are of Robertson's type. The main switchboard in the Mechanical Arts Palace is of Sicilian marble, and is effectively situated on a raised dais, from which the resident engineer, Mr. G. Marshall Harris, is enabled to keep a watchful eye on the whole generating plant. Mr. Dashwood, Messrs. Coates and Sons' engineer, must have had an anxious time as the day of opening rapidly approached, and the various works in his charge seemed far from completion, but by the energy of all concerned this section was hurried on, and, as was predicted in our last issue, there was little left open to criticism when the first public illumination took place. Not equal to Glasgow, perhaps, as some cynical observers have remarked, but it must not be forgotten that the Glaswegians are in the

centre of mechanical industry, whilst we are considered but novices; yet when the last visitor has passed the turnstile, it is certain that the consensus of opinion will be highly favourable to what may well be called the heart of the Exhibition.

The visitor to the Palace of Mechanical Arts having noted the absence of noise, will surely be favourably impressed with the absence of the heat and unpleasant oily odour which are generally associated with machinery in motion, indicating that the architects did not overlook the necessity for efficient ventilation. The system adopted in this hall and elsewhere throughout the building is the "Acme" natural system, and the excellent results certainly justify its introduction.

The method of regulating the twenty-four clocks throughout the building is by the synchronone system, Hope-Jones' patent. The master clock is situated by the main switch-board, and is probably the last word on electrically-controlled clocks. It contains but one wheel and a pendulum swinging free, by which electrical contact is made every 30 seconds. The power is derived from a few dry cells, which seldom need renewal, the accuracy of the clocks depending not at all on the strength of the battery. The electric current at the moment of contact passes through the whole system and actuates the hands of the subsidiary clocks, thereby all inaccuracy of time, maintenance of works, and periodical winding are avoided. It is a simple and neat system, and is well worth inspecting.

A working model of an automatic push-button electric passenger lift is to be found adjoining the main switch-board. An ingeniously devised electrical arrangement enables an intending passenger to bring the lift to the floor at which he may be, by simply pressing a button. The lift well gates, hitherto locked, are automatically released, the passenger enters the cage, and, by pressing other buttons, the lift will convey him to any landing he desires. No lift attendant is therefore required, and the adjustments are so simple that there is scarcely any fear of derangement.

It has already been noted that the buildings externally and part of the interiors are illuminated by the Robertson lamp, over 25,000 16-c.p. incandescent bulbs being distributed through the exhibition. Although in these days the electrical lamp is so much in use as to excite no interest in itself, yet its manufacture attracts large crowds at the stand which the Robertson Co. has erected, and which insistently calls for notice by its highly illuminated board, containing 367 8-c.p. frosted lamps. A bevy of comely damsels may be seen continually engaged on the various operations necessary to turn out the finished article, and it is wonderful to observe the rapidity with which the various processes of stemming the bulbs, mounting the filament, exhausting the air and sealing, are carried out, and the deftness with which the twisted and ornamental bulbs, for decorative work, are blown. The machinery is driven by a $\frac{3}{4}$ h.p. motor.

Messrs. W. H. Allen, Son and Co., Ltd., of Bedford, exhibit a three-throw crank shaft, which for eight years has been in use at Messrs. Harland and Wolff's works, running 12 hours a day for 300 days in the year, at 300 r.p.m. After all this long and arduous work the wear in many parts is not capable of measurement by instruments designed to detect a difference of a ten-thousandth part of an inch. The crank pins and bearings have all kept their original dimensions in the centre, but have worn slightly towards the ends, the maximum reduction in the diameter being $\frac{1}{10000}$ in. Forced lubrication was employed, to which, and to the original workmanship and material, these excellent results may be attributed. This firm has also on show an absolutely silent high-speed forced lubrication engine, a three-throw air pump, low lift centrifugal pump, and a turbine high lift pump, all of which will be of interest to the engineer.

The steam plant has already been dealt with, but the model of the water tube boiler exhibited by Messrs. Babcock and Wilcox in the south aisle is of much educational value, as the internal methods by which the steam is rapidly raised are exposed to view. Samples of solid drawn steel pipe, with rivetted instead of welded flanges, are also shown by this firm, and a full-sized working exhibit of the Gravity Bucket Conveyor used at the Dublin and Belfast power stations, is an example of labour-saving machinery which rapidly repays the initial expenditure of its installation. The power necessary to drive these conveyors is very small, a $\frac{1}{2}$ h.p. motor being installed for the purpose at the Exhibition. There is also a fine example of a forged header, showing the arrangement of moveable caps for tube inspection, the joints of which are metal-to-metal without insertion or packing.

The printing trade is particularly represented by Messrs. Hely's, Ltd., Dublin, who are responsible for the production

of the official programmes and catalogues, and by Messrs. Walker and Co., Colour Printers, of Jones' Road, Dublin.

The former firm has installed two printing presses, a die press, folding machine, thread sewing machine, and guillotine, at which a large staff are daily engaged, and the interested onlooker may watch the complete operation of printing, folding, binding and cutting the programmes for the following day. There are also lithographing and card-cutting machines for the production of picture postcards.

Messrs. Walker's plant has been installed for the purpose of showing the various processes involved in executing coloured posters, and there is little doubt that this affords one of the features of more general interest amongst the machinery exhibits, the gradual growth of the more or less decorative hoarding advertisement being very interesting to watch. The Linotype Composing Machine Co. has two examples of composing machines in operation similar to those installed by the leading Irish newspaper companies. By pressing keys similar to those of an ordinary typewriter, the dies of the type fall from the storage chamber, are collected, and impress the metal sheet placed to receive them, thus forming the type from which the matter is printed. Meanwhile the dies having completed their work, are brought to the top of the machine, re-sorted into the various letters of the alphabet, and dropped into the storage chamber ready for re-use. The details of the arrangements by which this series of movements are mechanically contrived are beyond the scope of this short article, but the operations can be readily viewed by the onlooker, who will doubtless be astonished at the complex machinery which is so rapidly ousting the compositor and his "stick."

The above brief description of the light and power plant, and of some of the principal installations of machinery in motion, affords but scanty appreciation of the numerous features in this section of the Mechanical Arts Palace. To do them proper justice would more than fill the whole issue, and even then the minor exhibits could scarcely be touched on. It suffices to say that the machinery is throughout of a modern type, and cannot fail to be instructive, and it has been erected in a thoroughly substantial manner. In some exhibitions this latter requirement has been overlooked; the writer is acquainted with one case in which, after the opening day, the engine beds gradually gravitated into the boiler room, and the movement was stayed only by the subsequent introduction of huge concrete buttresses. At Herbert Park the foundations have been taken down in concrete to a distance of about ten feet to a solid substratum, and the whole installation has more the appearance of permanency than of a temporary requirement. The faith of the Executive could not be more clearly indicated than by the erection of the Palace of Arts, containing priceless treasures, within a few feet of the boiler house and the power plant, which would appear to the general observer to be the most dangerous part of the exhibition. However, the precautions against fire are numerous, and great care has been taken to have the hose, handpipes, and the Millar's extinctors in accessible positions.

BUILDING AND ENGINEERING SPECIALITIES EXHIBITS.

Some of the Exhibits.

The Carron Co., Ltd., Carron, N.B., and Grafton St., Dublin (Irish manager, Mr. S. Heap).—On Stand No. 578—one of the largest in the Hall—this firm have an interesting collection of the various specialties manufactured at the Carron Works. Samples of "Carron" pig-iron, and of the materials used in its production, are shown in glass-cases. Coal, gas, steam, and electric cooking apparatus of almost every description, from the kitchen range of modest dimensions to the largest patterns of ranges suitable for hotels, institutions, and the like. Stable, cowhouse, and piggery fittings; baths, lavatory stands, sanitary and rain-water goods; firegrates, gates, railings, verandahs, etc., are shown. Another section of this firm's exhibit which is worth inspection is that containing saw-mill and joinery works tools, including lathes, saw benches, mortising machines, drilling machines, etc.

Messrs. Stevenson and Turner, of 1 to 17 West Street, Belfast, are showing on Stand No. 585 their manufactured lead specialties—lead pipes, compo gas pipe, and plumbers' furnishings; also samples of pig lead and street lead, and a variety of sanitary, water, steam, and bell fittings.

Messrs. Baxendale and Co., Capel Street, Dublin, have filled every available inch of their Stand—No. 572—with a most varied assortment of gas-fittings and builders' hardware, including baths, lavatories, closets, sanitary appliances, ranges, mantelpieces, wallpapers, and many other specialties almost innumerable, but worth seeing. It should be mentioned that Messrs. Baxendale are whole-

sale agents for the Welsbach Incandescent Gas Light Co., Ltd.

Messrs. W. O. McCormick and Co., Kill-o'-Grange Pottery, Monkstown, Co. Dublin, are displaying on Stand No. 550 samples of red chimney-pots, field drain pipes, and varieties of horticulture pottery.

The Kingscourt Brick and Terra Cotta Works, Kingscourt, Co. Cavan, and 45 Fleet Street, Dublin.—This firm are completing the erection of what will make an effective exhibit on Stand 555. It takes the form of a traceried window, which is designed in accordance with the "late decorated" period of the Gothic style, and is suitable for ecclesiastical and general work. This class of decoration or dressings for ecclesiastical and other buildings is lately coming into favour as a substitute for local stone, which will not always suit for fine tooling work, or in cases where soft stone when so worked is liable to rapid deterioration through atmospheric influence.

Messrs. Graves and Co., Ltd., Waterford, who are showing samples of their patent roofing specialties at Stand 564, were contractors for the covering with Graves' Patent Roofing of the whole of the flat roofs and gutters in the Exhibition buildings. Their exhibit includes samples of Graves' patent roofing (the original Danish asphalte), "Durateg" roofing, fibrous asphalte damp course, a model of a lattice girder roof and flat roof covered with patent roofing material; also samples of butter boxes, mineral water and other cases, and samples of the Waterford Brick Co.'s (of which Messrs. Graves are managing owners) high-class bricks, which are manufactured from crushed stone, and guaranteed free from lime.

Messrs. J. and C. McCloughlin, Ltd., Great Brunswick Street, Dublin.—At Stand No. 425 in the Palace of Industries this firm are showing samples of large entrance gates, railings, constructional and builders' ironwork, and also a variety of specimens of church brass work, all manufactured in Dublin. Amongst the orders Messrs. McCloughlin have at present in hands may be mentioned the large iron railings and gates in connection with the Royal Dublin Fusiliers' Memorial Arch, St. Stephen's Green, Dublin, which was recently illustrated in the IRISH BUILDER AND ENGINEER. They also designed and manufactured the bronze bracket for the ship's bell presented to H.M.S. "Hibernia" at the Exhibition last week.

In the next issue it is hoped to deal with other interesting engineering exhibits in the Palace of Mechanical Arts and in the buildings elsewhere.

ENGINEERING NEWS.

Athlone.—In our last issue the name of Mr. E. Costello, the Borough Surveyor of Athlone, was misprinted in error.

Belfast.—Mr. Thomas William Bloxam, A.M.I.E.E., A.C.G.L.I., has been appointed electrical engineer to the Belfast Corporation.

Ballymahon.—The Guardians of Ballymahon Union invite tenders for the completion of the sewerage from the annexe to the male infirmary. They also invite tenders for the supply and erection of brass lift and force pumps in the workhouse and fever hospital. Tenders will be considered on Thursday, 23rd May.

Clones.—At the meeting of the Clones Urban Council a letter was read from the L.G.B. sanctioning the temporary appointment of Mr. Kelly as Town Surveyor until 31st December next, when Mr. Kelly will have to undergo a further examination as to his qualifications. The letter also stipulated as to Mr. Kelly not entering into any further sanitary or building contracts in case of permanent appointment, and that should the Council have an important scheme on or before December a qualified engineer should be consulted.

Castlebar.—The L.G.B. have written to the Board of Guardians stating that they were unable to sanction the appointment of Mr. P. J. Garvey as engineer under the Labourers' Acts. At last meeting of the District Council a resolution asking the L.G.B. to reconsider their decision and giving reasons was adopted.

Claremorris.—On Wednesday Sir Acheson McCullagh, L.G.B. Inspector, held an inquiry at Claremorris into a petition against the proposed waterworks scheme for the town.

Claremorris.—The District Council invite tenders for the cleaning and recovering of sewers in the town, and also for the erection of an enclosing stone wall round the Ballinsmalla Burial Ground. Tenders will be considered on Tuesday, May 21st.

King's County.—Mr. Felix Molloy has been elected Assistant Co. Surveyor of the King's County Council.

Londonderry.—The Board of Guardians of above Union invite tenders for building sanitary annexes on the male and female sides of the workhouse, in accordance with

plans and specifications to be seen at the office of Mr. M. A. Robinson, C.E., Richmond Street, Derry. The Board also invite separate tenders for the plumbing work in connection with the annexes. Tenders will be received on to-day (Saturday), the 18th inst.

Limerick.—The committee of the Limerick Municipal Technical Schools invite Members and Fellows of the Royal Institute of Architects, Ireland, who have been for at least five years in independent practice, to submit designs for a new Technical Institute, which it is proposed to erect in Limerick. Conditions of the competition, with particulars of the accommodation required, map of site, with levels, etc., may be had on application, accompanied by a fee of 10s. The architect whose design is placed first by the assessor will be appointed to carry out the work. A prize of £30 will be awarded to the architect whose design is placed second.

Longford.—A loan of £3,000 has been sanctioned by the Local Government Board for the extension of the present water supply to Longford, comprising an additional storage reservoir, filter beds, and clean water tanks, from the plans and specification of Mr. Thomas J. Biggs, C.E., Ass. M.Inst. C.E.I., Dublin.

Manorcunningham.—Tenders for plastering parish church and other work will be received on May 30.

Swinford.—The L.G.B. have given a grant of £5 towards the cost of constructing a bridge over the Guistee river, near Swinford.

Tuam.—The L.G.B. have sanctioned the appointment of Mr. M. Newell as engineer for the erection of cottages, etc., in the Tuam Union under the Labourers Acts, Mr. Newell having successfully passed an examination held by an Inspector of the Board.

Thurles.—Tenders are invited for the carrying out of building works, sanitary plumbing, and hot water supply at St. Patrick's Diocesan College, Thurles, Archdiocese of Cashel, in accordance with drawings and specification prepared by Messrs. Doolin, Butler and Donnelly, architects, Dawson Chambers, Dublin.

Waterford.—The foundation stone of the extension of the Franciscan Church, Waterford, was laid by the Most Rev. Dr. Sheehan, Bishop of Waterford. Mr. John Hearne is the contractor, and Mr. Scully the architect.

Youghal.—At a meeting of the Youghal Urban Council a number of applications were received for the position of Town Surveyor. A telegram was read from the L.G.B. stating that the Council could not proceed to the election, as they had not sanctioned the dismissal of the last Surveyor. On a poll being taken, five voted for the adjournment, nine against, with two not voting. Mr. James Brady, Galway, was then elected to the position, seven members declining to take part in the proceedings owing to the L.G.B.'s telegram.

AN IRISH ENGINEER IN NEWFOUNDLAND.

T. A. Hall, C.E., the Government Engineer of Newfoundland, holds as such a position of great importance and influence. He was educated at Galway Queen's College, where he took out his degree in engineering in the school there. His first work was gained in the field work for the scheme of a convict prison to supply labour for the break-water to Mutton Island. Afterwards he lived for about 2½ years at Maam Cross as resident engineer on the Government Light Railway to Clifden, for which Mr. John Henry Ryan, M.A., was the chief engineer. He is a rising young man, and sure, under the new era of industrial development in Newfoundland, under its present progressive Government, to make a mark for himself. His advancement already is most creditable and remarkable.—"The Tuam Herald."

THE INSTITUTION OF THE CIVIL ENGINEERS OF IRELAND.

The following were elected, at a meeting held on 1st inst., the Council and officers for the ensuing session:—

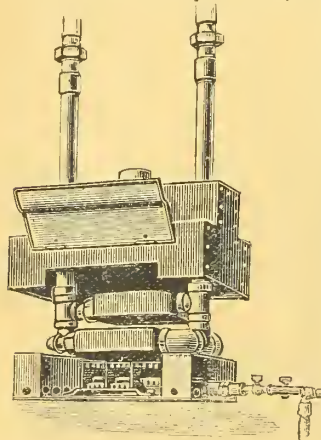
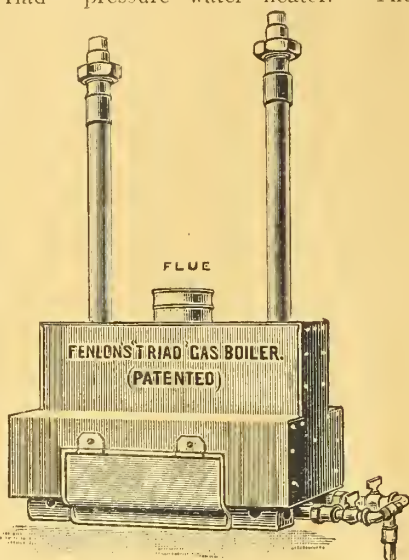
President—J. H. Moore. Vice-Presidents—G. M. Ross, P. C. Cowan. Council—W. Collen, M. Ruddle, J. H. Hargreave, F. Batchen, Allanson-Winn, F. Bergin, Purcell O'Neill. Associate Member—C. H. Ashworth.

Dunaskea (Co. Tipperary).—Estimates are required for building boundary walls, dwarf walls, under railing, gate piers, and stable, etc., at Dunaskea Church, County Tipperary, in accordance with the plans, etc., prepared by Messrs. Doolin, Butler and Donnelly, architects, Dawson Chambers, Dublin; also for the completion of the tower. Quantities may be had on application to Mr. D. W. Morris, 68 Harcourt Street.

Mr. J. C. Ebner has secured through his Irish agent, Mr W. J. Shaw, of Belfast, the wood block flooring of the entire church.

A NEW GAS CIRCULATING BOILER.

At the recent Building Trades Exhibition, Messrs. Fenlon and Son, Tudor Street, London, E.C., exhibited for the first time their "Triad" pressure water heater. The arrangement consists of three cast-iron boilers coupled together, and so arranged as to be easy of disconnection for cleaning purposes, etc. Our first illustration shows the outside appearance of the combination, and the second shows the casing raised (which can be done without disturbing the connections) to enable soot, etc., to be cleaned away. The "Triad" is intended as an auxiliary boiler, and is easily connected with existing circulating pipes anywhere between the kitchen range and the hot water cistern or cylinder, and it circulates water in different parts of the house. It may also be used independently of existing pipes, and will heat radiators, hot water pipes, coils, towel rails, etc., under pressure. Gas or oil may be used as fuel, and a flue socket is provided, so that all fumes may be carried off. By this invention the water is divided into three streams, and the heat acts all round the three boilers, so as to heat it rapidly, hot water being thus obtained much more rapidly than with ordinary single boilers. Messrs. Fenlon and Son are past-masters in the invention of heating apparatus, for which they hold a great number of exhibition awards, including the gold medal at Paris, 1892. Their illustrated catalogue is particularly rich in greenhouse appliances, and should be consulted by all who are interested in heating apparatus of any kind.



Paris, 1892. Their illustrated catalogue is particularly rich in greenhouse appliances, and should be consulted by all who are interested in heating apparatus of any kind.

PORTABLE DESTRUCTORS.

Rubbish of all sorts has a habit of accumulating until its removal becomes a serious question. In the country much of it can be used in some shape or other for manurial purposes; but there invariably remains a quantity of stuff which is practically indestructible. They are also not infrequently substances which, for hygienic reasons alone, should be quickly and thoroughly destroyed. The Horsfall Destructor Co., Limited, of Leeds and London, have designed a thoroughly practical small destructor, which we illustrate. It will effectually destroy garden and household rubbish without any inconvenience. This type of destructor is made in several sizes, and can also be provided with wheels for moving about from place to place as required.

A larger destructor of the portable type, and suitable for villages, camps, etc., is also made by the above company, consisting of a furnace attached to a cylindrical multitubular boiler, with a dust-catcher in the smoke-box, steam jet forced draught, and a short chimney, the whole being mounted on wheels for easy transport. The capacity of these portable destructors is from four to six tons of ordinary refuse per twenty-four hours. These destructors are good steam raisers, and when used in connection with hospitals, the power may be conveniently utilised in connection with electric lighting plant, Röntgen Ray apparatus, disinfecting chambers, and the like. They are also intended to be worked when stationary.



Horsfall "Garden" Destructor.

IMPORTS.

Port of Dublin.

May 1st.—Per Lord Londonderry, from Baltimore, 233 bbls. poplar lumber, 594 bbls. 244 pcs. pine lumber, to order. Per City of Stockholm, from Hamburg, 6 cases window glass, to order. Per Penrhyn, from Middlesboro', 340 tons cement, J. P. Corry and Co.

May 2nd.—Per Winga, from Goteborg, 1 case glass, 300 bbls. laths, 4,470 pcs. battens, 2,670 pcs. planed board, to order. Per Nelinheli, from Port Dinorwic, 100 tons cement, T. and C. Martin, Ltd.

May 3rd.—Per Solve, from Libau, 2,441 pcs. asper logs, Patterson and Co. Per City of Belfast, from Hamburg, 1,890 cakes asphalt, 41 rolls roofing, 1 case slates, to order.

May 6th.—Per Glengariff, from Middlesboro', 300 tons cement, J. P. Corry and Co. Per Nelinheli, from Port Dinorwic, 100 tons slates W. and L. Crowe, Ltd. Per C. S. Parnell, from Irvine, 50 tons fireclay goods, T. Millar, at Bray. Per Lady Martin, from London, 1,800 sacks cement, T. Dockrell, Sons and Co., Ltd. Per Lady Wolseley, from London, 1,000 sacks cement, T. Dockrell, Sons and Co., Ltd.

May 7th.—Per Elizabeth Ryan, from Chester, 100 tons bricks, T. Archer. Per Celtic, from London, 330 tons cement, Brooks, Thomas and Co., Ltd.; 23 tons hearthstones, to order.

May 8th.—Per Florrie, from Bridgwater, 160 tons bricks, T. Archer.

May 9th.—Per Louistic, from St. Malo, 170 tons slates, T. Archer. Per H. A. Coppack, from Chester, 40 tons bricks, H. and J. Martin, Ltd.; 80 do. do., C. P. Glorney. Per Oliven, from Rochester, 200 tons cement, A. Agnew.

May 10th.—Per Bray Head, from New Orleans and Galveston, 550 bbls. 15,692 pcs. firewood sawn, 4,530 pcs. oak lumber, 71 hickory logs.

May 11th.—Per Moses Parry, from Cowes, 130 tons cement, C. Chadwick, at Kingstown.

May 13th.—Per City of Berlin, from Hamburg, 1,134 cakes, 10 crates asphalt, to order. Per Aladdin, from Ghent, 10,768 bags cement, 4 cases marble, to order. Per City of Hamburg, from Antwerp, 5 cases window glass, G. M. Swail; 63 do. do., T. and C. Martin, Ltd.; 285 do. do., T. Dockrell, Sons and Co., Ltd.; 140 do. do., Brooks, Thomas and Co., Ltd.; 114 do. do., J. Arigho and Son; 50 do. do., Hoyte and Son; 40 do. do., L. Liperonna and Co.; 10 do. do., J. Sibthorpe and Son; 924 steel bars, 35 joists, and 6 cases window glass, to order. Per Lord Charlemont, from Baltimore, 163 pcs. oak lumber, 26 tons roofing slates, to order. Per Progress, from London, 780 tons cement, J. Wetherill. Per Staprayder, from London, 280 do. do. Per Bangor, from Newcastle, 335 do. do., N. McNaughton.

The Local Government Board announce that in accordance with the application of the South Dublin Rural District Council, for sanction to a loan of £20,000 for the purpose of a sewerage scheme for Terenure, they have directed their Chief Engineering Inspector, Mr. P. C. Cowan, to hold an inquiry in the matter on 23rd inst. at the Receiver's Court, Four Courts, Dublin. Mr. T. J. Byrne, A.R.I.B.A., is the Engineer for the scheme, and Mr. George Chatterton Consulting Engineer.

At the recent Building Trades Exhibition, the Patent Adjustable Bath Company, of 31 Broad Street, Birmingham, exhibited their tip-up bath. These baths are made to stand very heavy weight inside, as they fit flat upon floor when in use. Strong lead-coated "steel sheets" are used in their manufacture, and they are enamel-painted inside. The waste outlet is made of "malleable iron," with about one foot of lead pipe attached "joint made," and where there is no fixed tap over bath no extra water rate should be charged. An illustration of the bath will be found in our advertising columns.

TENDERS.

Armagh.—Alterations to corridors, male side, main building, Armagh Asylum. Mr. R. H. Dorman, county surveyor. Simpson ... £345 0 0 Martin and Co., Armagh (accepted) ... 335 0 0

The Charleville Mall Library.—Tenders for building additions to Charleville Mall Library have now been opened, and the contract has been awarded to Mr. J. Navagh, whose estimate was the lowest, viz., £3,458. Also tendered:—G. Langley, £3,450; P. J. Hussey, £3,580; T. Mackey £3,640; J. Egan, £3,678; W. Conniffe, £3,685; J. Donovan and Son, £3,700; Farmer Bros., £3,725; J. P. Good, Ltd., £3,800; W. Connolly, £3,875; J. Pemberton, £3,913; A. Hull and Co., £3,949.

CONTRACTS.**TO ARCHITECTS.****LIMERICK MUNICIPAL TECHNICAL SCHOOLS.
COMPETITION DESIGNS FOR NEW TECHNICAL
INSTITUTE.**

The Committee invites Members and Fellows of the Royal Institute of Architects, Ireland, who have been for at least five years in independent practice, to submit designs for a New Technical Institute, which it is proposed to erect in Limerick. Other architects wishing to compete should apply to the Committee for permission.

Conditions of the competition, with particulars of the accommodation required, map of site with levels, etc., may be had on application to the undersigned, accompanied by a fee of 10s.

The architect whose design is placed first by the Assessor will be appointed to carry out the work.

A prize of £30 will be awarded to the Architect whose design is placed second.

JAMES COMERTON, B.A., Secretary.

69 George Street, Limerick.

TO BUILDERS AND CONTRACTORS.

Estimates are required for building Boundary Walls, Dwarf Walls, under Railing, Gate Piers, and Stable, etc., at Dunaskea Church, County Tipperary, in accordance with the Plans, etc., prepared by the undersigned.

The Plans, etc., and Forms of Tender can be had from the Rev. Matthew Ryan, P.P., Knockavilla, Dundrum, County Tipperary, or they can be inspected at our offices.

The lowest or any tender not necessarily accepted.

Tenders are also invited for the completion of the Tower.

Quantities for this portion of the work, prepared by D. W. Morris, Esq., may be had on the Surveyor's application to the undersigned.

DOOLIN, BUTLER and DONNELLY,
Architects.

Dawson Chambers, Dublin, May 7th, 1907.

**TO BUILDING CONTRACTORS AND PLUMBERS.
ST. PATRICK'S COLLEGE, THURLES.**

Tenders are invited for the carrying out of certain Building Works, Sanitary Plumbing, and Hot Water Supply at St. Patrick's Diocesan College, Thurles, in accordance with drawings and specification prepared for that purpose, and which may be inspected on and after this date at the College, or at the office of the undersigned.

Tenders, upon forms provided, to be delivered to the Very Rev. the President, at the College, on or before Tuesday, 28th inst.

The lowest or any tender not necessarily accepted.

DOOLIN, BUTLER and DONNELLY,
Architects.

Dawson Chambers, Dublin, 10th May, 1907.

ARCHITECT'S ASSISTANT.

Young Man (23) desires situation as Architect's Assistant. Sound general knowledge. Working drawings, details, quantities, specs., surveying, levelling, etc. Has experience in school and church work. Salary moderate. Apply to this office.

YOUNG MAN, disengaged, has been six years Head Foreman for provincial builder, strict T.T., holds Certificates in Carpentry, Joinery, and Advanced Building Construction, a good knowledge of plans, manager of men, machinery, wishes engagement as Clerk of Works, Builder's Assistant, or in an Architect's office. Reply "G," "Irish Builder" Office.

ASSISTANT desires situation with Builder; general knowledge, management, book-keeping and accounts good references and experience. Apply Box 467, "Irish Builder."

YOUTH of 18 will make himself useful in Architect's or Builder's office. Good at drawing and tracing plans. Can typewrite. Moderate salary.—J. F. H., 31 Moyne Road, Rathmines, Dublin.

FOR SALE. Gas Engine, 40-b.h.p. Kynoch's and Dawson's Suction Gas Plant for same. All new; 1003. Seen working saw mill at present here; more powerful installation being adopted. Must be sold immediately. A bargain.—J. and R. Thompson, Ltd., Philipsburg Avenue, Fairview, Dublin.

YOUNG MAN, will shortly be disengaged, desires a situation as Builder's Assistant. Is a practical man. Good knowledge of plans and management of work and men, and correspondent. Strict T.T. Good references. Apply "D," 457, "Irish Builder."



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Estd. 1896.

ADVERTISERS' TRADE CARDS.

ASPHALTE (MINERAL ROCK). THE LIMMER ASPHALTE PAVING CO., LTD., 2, Moorgate Street, London, E.C.	LOCKS & SAFES. HOBBS, HART & CO., LTD., Arlington Street, Islington, London, N.	SEWAGE PURIFICATION. THE SEPTIC TANK COMPANY, LTD. Agent: E. W. QUIRK, 18 & 19 Wellington Quay, Dublin
COOKING APPARATUS. W. SUMMERSCALES and SONS, LTD., Phoenix Foundry, Keighley. Representatives in Ireland:— CRAIG & PATON, 2 and 4 Great Victoria Street, Belfast.	LITHOFALT ASPHALTE PAVING. THE LIMMER ASPHALTE PAVING CO., LTD., Works: Magheramorne, Co. Antrim.	SLATING and ROOF TILING CONTRACTOR. JOSEPH TAAFFE, 36 Buckingham St., Estimates free. Dublin.
CHIMNEY & DRAIN CLEANING MACHINE. H. HART, 29 Settles Street, Commercial Road, London, E.	LIGHTNING CONDUCTORS. W. J. FURSE & CO., Traffic Street, Nottingham. Representative in Ireland:— John McNeill, Ocean Buildings, Belfast.	SQUARE CUT WOOD WORK, NEWELS, BALUSTERS, Etc. JONES & LEACH, Newtown, N. Wales, 20 Victoria Street, S.W.
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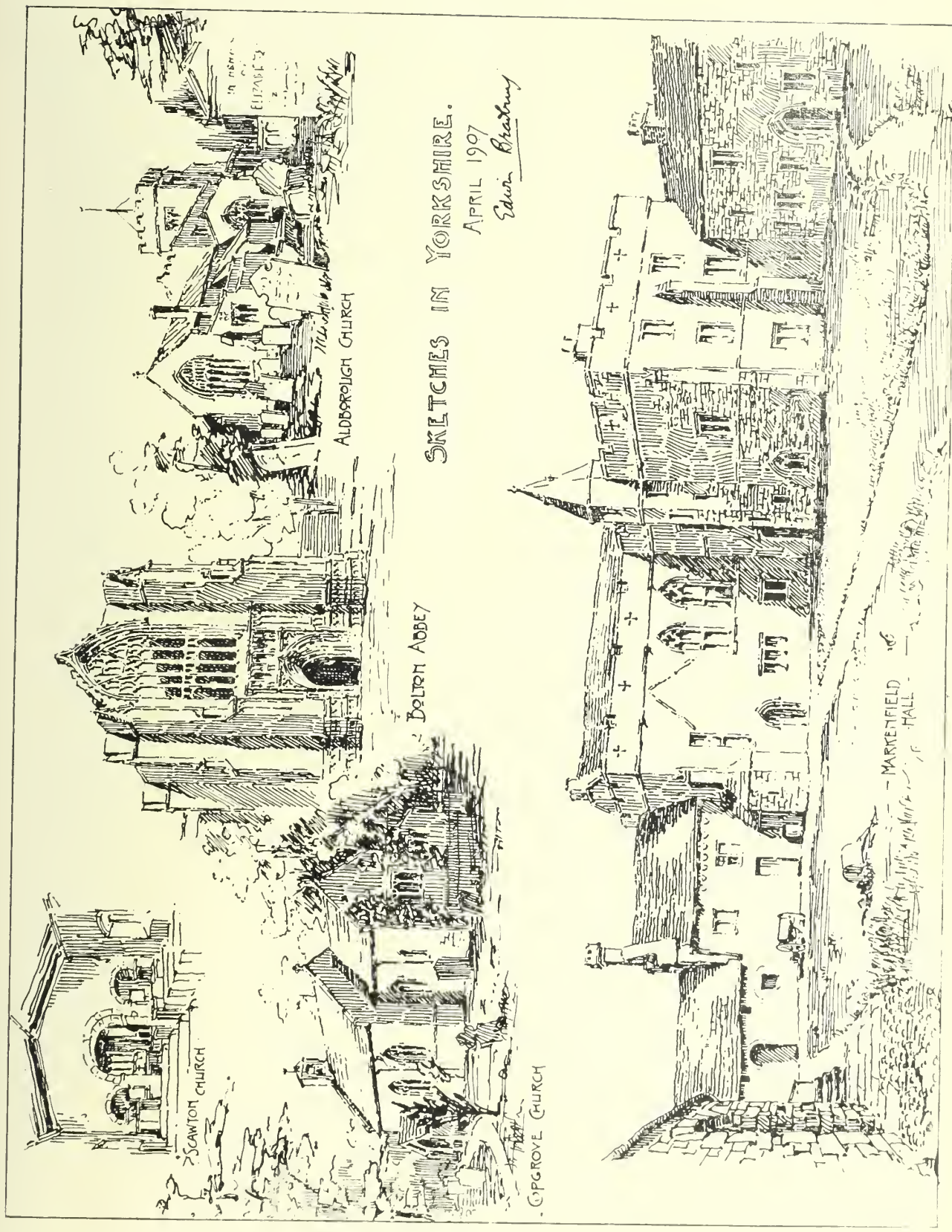
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A JOURNAL DEVOTED TO

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HEAD OFFICE

June 1, 1907.

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TOPICAL TOUCHES.

In our last issue we stated that Mr. Anthony Scott, M.S.A., was the architect for the new Agricultural College at Athenry. We find that the architect is Mr. William Scott, A.R.I.B.A., son of Mr. Anthony Scott. We regret the error which occurred, but it was not altogether our fault, as the information was derived from reports in the local Press.

* * * *

Messrs. Beckett and Metcalfe have been appointed quantity surveyors for the College, the building of which should give some much-needed employment in the West.

* * * *

We were speaking to a member of the Plasterers' Society the other day, and he impressed upon us very strongly that an intolerable hardship was inflicted upon the members of his society by the growing increase in the practice of sub-letting plastering work, now generally in vogue in Dublin. He said the work generally was scamped to so great an extent by cheap labour as to practically oust the members of his trade from employment.

* * * *

This plasterer blamed the architects very much for the present state of affairs. He pointed out they had clauses in their agreements forbidding sub-letting which they allowed to become a dead letter. We do not know how far these statements are well founded, but slaters have told us the same thing.

* * * *

We do know this, that it is becoming increasingly difficult to get first-class plastering and slating done under the ordinary contract system. If the facts are as alleged by the plasterer, the architects have the remedy in their own hands.

* * * *

By the death of Sir Benjamin Baker, one of the ablest and best known of English engineers passed away. He was responsible for the design of very many fine engineering works, but his name will be notable in the history of our times chiefly in connection with the great bridge over the Forth and that colossal structure the Nile dam, which is helping largely to turn parts of Egypt from a poverty-stricken desert into a rich and prosperous land.

The *conversazione* given by the Royal Society of Antiquaries of Ireland was a most successful affair. The spacious halls of the Science and Art Museum afforded unlimited space for promenading while the excellent band of the Cameron Highlanders played. The numerous and splendid exhibits in the Museum afforded ample subjects to while the time away pleasantly. His Excellency the Lord Lieutenant was present, and remained some considerable time.

* * * *

Our resident correspondent at Portrane Asylum writes that he has lately been reading the specification of a certain eminent architect, and he notices that the slates are specified to be each secured with two 2-inch slating nails, *previously* boiled in oil. Why *previously*? he asks. Why not subsequently? or why not, at least, give the contractor the option? It is one of those old-fashioned fads that tend so much to increase the cost of building. Because, so long as the nails are boiled in oil (which, by the way, they seldom or never are), our correspondent says it doesn't matter a jot to the employer, *when* the contractor performs the operation.

During last week the Trades Congress held its sittings in Dublin, and many matters of considerable importance were discussed. The annual dinner was held in the Gresham Hotel.

* * * *

Amongst the matters of interest discussed was one of considerable local interest, namely—the practice of permitting persons other than those following a particular trade to attend the classes in the City of Dublin Technical Schools, relating to that particular trade. A resolution was proposed condemning the custom, but was lost on a division.

* * * *

Now, in one way we are glad the resolution was lost, because it indicates a liberal and progressive spirit on the part of the trades unions, whose representatives declared that the technical classes were maintained at the expense of the ratepayers, and they could not exclude anyone from the benefits thereof. That, of course, is a very proper view to take, but one wholly inconsistent with the maintenance of the “caste” system in the Dublin trades, or any artificial or compulsory limitation of the number of apprentices.

* * * *

On the other hand, we think the supporters of the resolution were really right, and quite logical in their argument. It is quite true that the technical classes are maintained at the expense of the general public, but, if so, it is for a specific purpose, namely—to improve the trades and handicrafts, and to try and bring them back to their old-time skill and excellence. Now, obviously it is very little use, for instance, teaching a smattering of plumbing in a technical school to a man who has no intention of following the trade of a plumber in the ordinary way. To do so is hardly fair to regular tradesmen, and only recruits the ranks of the “botches.” Of course, there may be cases in which an architect or a builder might perfectly legitimately desire to go through a course of the rudiments of a particular trade. Similarly a course of manual instruction may be most useful to any boy in after life, and tend to make him handy as a man about his own house or farm. But the great object of technical education is not to supplant apprenticeship nor to half train boys, but to improve the education of regular tradesmen and their apprentices.

* * * *

The fact of the matter is, Technical Education in this country is in danger of becoming a fad. It is a means to an end, and should be so dealt with.

* * * *

We are reminded of the story—a true one—of an occurrence which took place in the south-west of Ireland some years ago. A fishery school was established in this place, which shall be nameless, and, strange to say, the classes were largely patronised by girls, and, stranger still, they were permitted to waste their time in the study of a subject that could hardly be of very much use or benefit to them. However, the annual examinations took place, with the result that the more industrious girls carried off all the prizes! The school, we believe, was eventually closed.

* * * *

In the present issue we note briefly the British painters' section of the splendid collection at the International Exhibition. In a subsequent issue we hope to deal with the foreign painters' works, sculpture, black and white, and architectural work.

THE EXHIBITION.—THE ART COLLECTION.

The Irish International Exhibition may now be described as being practically in full swing. The French pavilion is not yet completed, but otherwise little seems remaining to be accomplished. The grounds, naturally beautiful, with the added attractions of colour in the gay flower beds, are daily getting into better condition, and may be expected to look their best in another week or two.

Far and away the greatest feature of interest, and the most wholly successful, is the collection of pictures in the Fine Art Gallery and the Historical Sections. Those responsible have every reason to congratulate themselves upon the assembly of a collection, unique so far as this country is concerned. Without reference to quality at all, it may be said, that in extent alone the collection is more than imposing. Early in the history of the venture, the services of a very representative committee were enlisted, and included such Dublin names as Sir T. Drew, Sir W. Armstrong, Mr. Catterson Smyth, Colonel A. H. Courtenay, C.B., and many others. In addition there was a committee in England, which included directors of the Guildhall and National Galleries, George Frampton, R.A., etc., etc. The collection housed in the galleries comprises oil paintings, water-colours, sculpture and an Irish historical loan collection of various objects of historic interest, notably many Napoleonic relics.

The pictures, sculpture, black and white drawings already catalogued total to the large number of over 850 exhibits. The galleries are divided into six principal sections, comprising (1) the British painters, (2) the foreign painters, (3) British water-colourists, etc.; (4) black and white, (5) pictures, drawings, engravings, and sculpture by Irish artists.

Modern British Painters.

The collection of British painters is by far the strongest, if not, perhaps, the most interesting, and includes pictures by the most notable of modern English painters. There are in this collection many well-known popular pictures, such as the "Roll Call," "Scotland for Ever." One of the most curious impressions in walking through a gallery like this, containing examples such as we have mentioned, and specimens of the once popular works of Leighton and Millais, is to reflect on the change of taste that passes in cycles. Few rising painters of to-day who aspire to greatness would voluntarily imitate the "Christmas annual" subjects effected by Millais, once so popular, while Leighton's rather languid classical subjects, which ten years ago commanded fabulous figures, have fallen substantially in price and in estimation. One of his pictures was sold the other day in London for a tenth of what it fetched ten years ago, and it is hardly to be wondered at when we think of the gradual passing of insular prejudice and British self-sufficiency which looked on every nation and every art and literature as necessarily inferior to its own. Culture, a broadening of the basis of art, together with travel, have all combined to open the eye of the Britisher. Still prejudice dies hard, for only the other day some speaker in Dublin boldly asserted that British Art in painting and sculpture was now practically the only living art in Europe! The truth is, British art in those particulars was seldom lower—in the main, devoid of imagination and romance, stilted and stodgy—in fact, with the permeating heaviness of the Christmas supplement writ large over it. Only the other day our contemporary "The Builder" found the Royal Academy Exhibition in Burlington House "uninteresting." Still, the collection in the Exhibition galleries is interesting, and contains many of the best modern British pictures, which stand far above the average.

Amongst them may be mentioned Leighton's "Summer Slumber" and his "Atalanta;" "Music of the Sea," "La Belle Dame Sans Merci," by J. W. Waterhouse, and one of the finest of British military paintings, "Wellington's March from Quatre Bras to Waterloo," by Ernest Croft; "Hamlet, the Play Scene," by E. A. Abbey; "Snowden," by Hubert von Herkomer (a foreigner). A rather interesting painting by Orchardson, and not in his usual manner, is "Escaped." A particularly good example of Whistler's quaint and characteristic methods in portraiture is a picture of a rather plain little girl, entitled "Miss Alexander." One of the most entirely beautiful pictures in the whole collection is "Mid-Summer," by Albert Moore, an English painter, who, for some reason or other, never reached the position in public estimation that his talents entitled him to, an opinion fully voiced by the late Stacey Marks more than once.

Pictures, which not the most rabid railer against British want of imagination could run down, are Byam-Shaw's "Purity" and "Hope," and Reginald Frampton's "St.

Cecily." Of a more conventional type is "The Last Muster," by Hubert von Herkomer. Two or three pictures by Alma Tadema are included. A portrait of Tennyson, by Watts, is characteristic. Two beautiful pictures are "Proserpina," by G. D. Rossetti, and "Isabella," or "The Pot of Basil," by J. M. Strudwick. Mr. Strudwick's picture has a good deal of the pre-Raphaelite manner about it. One of the best of Marcus Stone's popular pictures, "In Love," is hung. This is particularly interesting as an example of the artist at his best—his later pictures deteriorating into mere "pot-boilers." A rather nice portrait of a pretty woman is that of Miss Ethel Barrymore, the actress, by Mrs. Leslie Cotton. "The Depths of the Sea," by Burne-Jones, is a typical example of a phase of his work, but not to be taken as the best that he could do, for he was unquestionably not only one of the greatest and most sincere of modern British painters, but original in his methods and schemes of colour far above the most of his contemporaries. There are some good examples of W. J. Wyllie, J. McWhirter, and Alfred East.

The collection is, indeed, a remarkable one. It is singularly lacking in ex-

amples of the "impressionist" school, which may or may not be a loss.

"British sculpture" is represented by some eighty or ninety exhibits, a large number for a British collection, and to which we hope to return at a later date.

A striking feature is the vast number of pictures lent by English municipalities, and one is forced to say that their support of British Art in painting must be eminently helpful and encouraging, because some of the pictures lent by them are not alone amongst the best in the collection, but have been chosen with evident judgment. The pictures owned by English municipalities would alone form a splendid collection. How is it, that if the hard matter-of-fact Saxon supports Art to this extent, that we Celts, who boast of our superior artistic instincts, cannot do a little in this way. We have no living school of painting or sculpture, but if our Irish Corporations set apart a small sum every year and, under competent guidance, bought a few pictures of merit by Irish artists, a good deal might be done and much encouragement given. The smaller municipalities might not, perhaps, afford to buy big pictures, but every year in Dublin there are to be seen pictures—even if water colours only—well worthy of being purchased and the artists en-



Exhibit of Stained Glass Window,

By Messrs. J. Clarke and Sons, 33 North Frederick Street, Dublin.

couraged. We shall never have Art in any shape or form until the people, and their popular assemblies, realise their duty in this respect of educating public taste. Why, every County Council in Ireland could well afford to buy at least one picture a year.

Another thing that strikes one is the large extent to which the later British School is under obligations for its reputation to foreigners; such names as Hubert von Herkomer, Alma Tadema, Whistler, John Sargent, E. A. Abbey, and others occur at once.

(To be Continued.)

BUILDING TRADE EXHIBITS.

The stalls are all practically now in working order, and one has time to walk around and see what there is of building trade interest or of the cognate arts and crafts. We find, unfortunately, that these exhibits have not been collected into a section by themselves, but are scattered throughout the various buildings, so that the following by no means pretends to give a complete list:—

Messrs. J. Clarke and Sons, Stained Glass Artists,
33 North Frederick Street, Dublin.

Entering the large hall at the Ballsbridge entrance, almost the first exhibit one notices is a very good stained glass window by Mr. Clarke. The lighting, unfortunately, is not of the best; still one can see and examine the colouring very well. The general scheme and design and execution is exceedingly creditable to Dublin, and shows that there is no need to go outside Ireland for stained glass windows for our churches and public buildings. The illustration we reproduce on the preceding page gives an idea of the general character of this window.

The subject is one of a series illustrating the legend of St. Patrick baptising the two Princesses—Fedlem, "The Red Rose," and Ethna, "The Fair." St. Patrick, "A Kinglike presence," and "monks stand nigh." The Royal maids, clad in soft white robes, kneel by Clebach well.

"They knelt, when that Vision of Peace they saw;
Knelt, not in fear, but in loving awe."

The text is from the popular poem by Aubrey de Vere. The window is a masterpiece in both composition, drawing, and colouring, all the details being carefully studied and well carried out. A deep border of silver white encloses the subject, which gives a pleasing contrast to the beautiful colouring of the figures. The border and ornamentation through the window reveals a great variety of Celtic design. The technical skill displayed in the rendering of this beautiful subject in stained glass reflects the greatest credit on the enterprise of Messrs. J. Clarke and Sons, who have already achieved a high reputation in the production of stained glass windows which adorn our churches throughout the country.

Messrs. Shanks and Co., Ltd., Barhead, Glasgow, Sanitary Specialities.
(Mr. John L. Smallman, Dublin Agent.)

The firm of Shanks and Co., Ltd., is so well known that, as might be expected, they keep in the very front rank of makers of the very latest modern fittings. It is many years since the old-fashioned timber casing for baths was condemned by sanitarians. In more recent years the principle has been largely developed in the design of baths, lavatories, and other fittings. The whole tendency is to get rid of supports, trimmings, soap dishes, and anything else likely to catch dust and dirt and retain soapy matter, or be difficult to clean. Messrs. Shanks' exhibit includes two really fine baths; the cheaper of the two is sold at the low price of eleven guineas; it embodies the latest principles of cleanliness and comfort. Soap dishes disappear, and, in their stead, light detachable nickel-plated trays; all the parts, waste, etc., are plated, and easily removed for cleansing—together a splendid bath, fit for any mansion. Solid fireclay enamelled baths are also shown, the same principle of cleanliness being here observable. Nowadays, high-class lavatories are without brackets, and are either supported on legs of a material practically identical with the basin, or are built into the wall without extraneous supports of any kind. The w.c. apparatus are also of the latest pattern, the cisterns in particular being of a particularly clean and attractive appearance. A recent development is the increasing popularity of combination closets, formerly only used where there was a deficiency of head room, but now extremely popular in all situations. In addition to these higher-class fittings, Messrs. Shanks' representative told us they can supply other fittings at the lowest possible prices for good articles.

Architects should not miss seeing this stand.

Messrs. Shanks and Co. supplied all the sanitary fittings required for the Exhibition.

Messrs. Campbell Bros., Belfast.

Messrs. Campbell Bros., Franklin Street, Belfast, are represented in the Entrance Hall of the Exhibition by a fine exhibit. They show a three-light stained glass window depicting three subjects—"The Presentation in the Temple," "The Baptism of Our Lord," and "The Crucifixion." The grouping of the figures in the first two subjects is admirably arranged, considering the limited space available. In the Presentation, the figure of St. Simeon with the Holy Child is a striking one. The reverential and holy aspect of the patriarchal old man, eloquently expressive of a life's desire at last attained, is beautifully rendered; his robing is of rich ruby and green, which, together with the blue robe of the Blessed Virgin and the brown draperies of St. Joseph, form a blending of most perfect harmony. Through the pillars of the Temple the neighbouring buildings are seen, with the city in the distance.

Our Lord's baptism by St. John, its companion subject, is equally rich in colour, yet subdued. Our Lord, Who stands in the water, is draped in a robe of purple of changing hues, receiving in effect its varying play of light from the heavens above, from which is descending, in the glory of golden and silver rays, the Holy Ghost in the shape of a dove. The rich brown of the camel skin worn by the Baptist, together with the green of the surrounding trees and foliage, brings in the contrasting note, and completes a most happy and successful colour scheme. The central opening is filled with "The Crucifixion," and is treated in a most subdued manner.

Our Saviour on the Cross appeals tellingly to the spectator, so strikingly is He in contrast with the background of deep blue sky of gloom, through which flashes of bright colour are seen, the sun and moon are darkened, all nature sharing in the solemnity of the great tragedy being enacted.

The Cross is placed well forward in the picture, on the crest of a mound, the effect of distance being obtained by the city being shown well down, and of neutral tones which merge into the blue of the horizon. The subjects are surmounted by Gothic canopies resting upon bases of like character, which contain scrolls bearing appropriate texts. The entire work is most artistically treated, the soft tones and quiet painting of the flesh being a marked feature.

Messrs. Musgrave and Co., Ltd.

Messrs. Musgrave and Co., Ltd., St. Ann's Works, Belfast, and London and Paris, have a very good exhibit. This firm are noted chiefly for their various systems of hot water, hot air and steam heating, and stable fittings. At their stall are shown examples of each, including the latest adaptation of the "Plenum" system. Full size fans are exhibited.

A large scale model of a first-class stable is also shown, with all the details perfectly displayed, and shows up-to-date ideas in stable and harness-room fittings, wall tiling, pavements, stall divisions, etc. Some capital types of slow combustion stoves are displayed, notably one very artistic and cleanly pattern, all in green glazed faience, with a kerb of the same. A feature of these stoves is the open fire. One of the objections to stoves is the absence of the open fire, but here this difficulty appears to be overcome, and the advantages of stove and open fire combined.

(To be continued in our next.)

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REVIEWS.

Modern Practical Carpentry.*

This new work, containing over eleven hundred excellent illustrations, has lately been published by Mr. Batsford, and is one of the clearest and most practical treatises on constructive craftsmanship that we have ever come across. Most of the standard works on the subject of carpentry have become somewhat out-of-date, excellent as they undoubtedly were in their own way. The present author has, as he states in his preface, aimed chiefly at the exposition of the *practical* side of the subject. Most of the authors of previous works on the subject have been either architects or engineers, neither of whom could be expected to have the same practical acquaintance with the problems presented as the man who had the advantage of working at all branches of his trade. Mr. Ellis claims to have covered the entire ground, "from the making of a mallet to the construction of a cathedral dome, or the centering of a deep tunnel."

Each subject is dealt with separately, and distinctly complete in itself. The special attention of prospective readers is drawn to the chapter on roofs, in which every known form is dealt with, and to the subjects, hitherto practically untouched in works on carpentry, of temporary work on buildings, spectators' stands, excavations, tunneling, scaffolding, etc., also to the use of timber in foundations.

Amongst the many and varied types of roofs dealt with are some very interesting types of fitch roofs, which were invented by Philibert De l'Orme, and which, it is strange, have not been more extensively adapted to modern practice, as the fitch truss admits of great and unbroken headroom within the roof, such as is not obtainable by other forms of roof construction. A notable example is a roof at Antwerp with a pointed arch rib, designed by De l'Orme, over a 30-ft. span. The ribs are simply formed of three thicknesses of 1½-inch boarding, cut to the sweep, and in short lengths, broken jointed. The ribs are spaced five feet apart, and form a support for the principal rafters, which are built up in a similar manner. The common rafters, which are very light, only 2 in. × 2 in., are supported on purlins notched to the principals. The author says that this type of roof is less economical to construct than the ordinary types, but we venture to say there are many cases in which—for instance in church roofs—this form of truss might be most economically and advantageously used. It is light and strong, and the cheaper classes and scantlings of white deals, or prepared white Norway, may be readily used. Laminated rib roofs are also fully described.

The construction of domes, spires, etc., are fully detailed with the aid of the very excellent illustrations.

One of the most important and interesting chapters in the book is that on scaffolding, staging and gantries. With the development of the modern monster dwelling or skyscraper has come the demand for newer and vastly more important schemes of scaffolding, staging, and gantries. Many of these great modern buildings have to be built from flying scaffolding, while the derrick towers and gantries attain proportions never dreamt of by our ancestors. Mr. Ellis has done justice to this portion of his subject, by giving a series of capital photographs of these large schemes of scaffolding. A very fine example of the masterly service of a great building works is illustrated by the photo of the scaffolding and derrick towers used in the erection of the new Government Offices, Whitehall. These buildings, by the way, have turned out most disappointingly, and are thoroughly commonplace in design, as realised. The other day in Parliament the criticism was not sparing. There seems to be some fatality against the English Government ever getting a decent building in modern times; and so much was hoped for from the new Whitehall Offices and the Queen Victoria Memorial, which is artistically valueless from its contemptible scale.

The construction of half-timber buildings is dealt with at length, and a wide range of examples given, which should be most acceptable to that large section of builders interested in suburban housing. Much that is of interest, perhaps more especially to the Colonial builder, is embraced in the chapters on bridges and timber frame buildings, whilst the fifteen tables comprising chapter XXV. give in a

concise and convenient form for reference all the latest and most useful data relative to the strength, sizes, qualities, etc., of timber, and the scantlings for roof timbers of various forms.

Another modern branch of carpentry, almost wholly developed in our own times, is that dealing with centering for sewers, tunnels, and other deep engineering constructions, and the latest forms of centering for such works are illustrated and described. Other matters of a like nature are coffer dams and caissons.

In our leading article in a recent issue we referred to the subject of modern caissons. The subject is dealt with, but not so completely as the modern importance of this branch of carpentry would lead one to expect—many of the timber caissons constructed in America, and used on the open crib principle, being very great efforts of construction.

A good chapter on timber stages, piers, wharves, and jetties is given, and illustrated by photos and details.

Some very charming examples of old half-timber work and mediæval roofs are given. They are invariably as good as their modern imitations are unmistakably bad. The author gives an example of "a modern half-timber gable" on plate XXVII. It is a good example of what to avoid, while on the very next page is a photo of a delightful little porch at Margetting Church, Essex. Again, the modern cottage porch, on page 267, is a really dreadful thing, and it is a pity Mr. Ellis allowed it to be included in such a fine work. However, it is a type of what is being done nowadays. One can see worse examples round the Dublin suburbs any day. In fact, none of the examples of modern ornamental work are particularly happy, but this is a very small defect in an excellent work.

Our old friend, Harry Hems, thus writes of it:—

A country carpenter's apprentice wants to know the name of a book that will really further him in his trade, and be likely to make a man of him in after-life. He cannot do better than write to Mr. B. T. Batsford for "Modern Practical Carpentry," of which the author is George Ellis, one of the smartest craftsmen of the day. It is the best book of its kind of the present generation. Well, we have read it, and not perfunctorily, and we can endorse Mr. Hems' words, for there is no question but that it is the very best book of the kind extant, and ought to be included in every student's library.

Drain Testing Plugs, Etc.

We have received from Messrs. Smith and Co., 284 South Road, Wakeley, Sheffield, particulars of two of their specialties, which appeal especially to those engaged in the building and kindred trades. These consist of the New Triple Expansion Drain Plugs, and the New Combined Gradient Rule and Level.

Messrs. Smith's Drain Testing Plugs have achieved great success, and have won the appreciation of architects, clerks of works, builders, corporate officials, and others, who have used them. They are well designed, embodying excellent workmanship and a superior quality of rubber, besides being cheap and light, weighing, as they do, only 4 lbs. They are now made in three different types, viz.:—No. 1, for 4-in. pipes only; No. 2, of heavier castings, deeper grooves, and wider rubbers, the plug expanding from 3¼ in. to 5¼ in., and with the patent auxiliary rubber ring to 6¾ in.; No. 3, similar to No. 2, except that it has a 1-in. centre outlet, the wing-nut being made to run in a ball-bearing race so as to save metal friction. A feature of these plugs is that they are made of brass, not cast iron, and that they can be fitted with Messrs. Smith's auxiliary rubber ring, which will fit over 4-in. plugs so as to fit 5-in. or 6-in. pipes, thus making one plug suitable for three sizes of pipes, or, in other words, giving three plugs in one.

Smith's Patent Gradient Rule and Level is a new and most useful tool, worked on very simple principles, and especially suitable for building operations. It consists of a combined gradient rule, spirit level, and steel registering blade, set true, and with each rule are a pair of sighting pieces and shoes for affixing to rule. By the aid of this tool, ground levels for new buildings can be accurately got (without the use of long straight edge), no matter how uneven the ground. For road-making, curb-setting, etc., the rule can be fixed (by sighting) to the exact gradient required, when the tool not only fixes itself to the gradient, but registers on the blade the gradient per yard. By this arrangement it is easy to find out in a given number of feet how much the ground has risen above level line—a most useful thing for a builder, when building in a steep street, to determine the level jumps. In a similar way it can be employed, using the sighting process, to get at the exact gradient required for excavating the ground for draining work, and can also be adapted as a guide for fixing the drain pipes—a more accurate and quicker method than the

* "Modern Practical Carpentry." For the use of workmen, builders, architects, and engineers, containing a full description of the methods of constructing and erecting roofs, floors, partitions, scaffolding, shoring, centering, stands and stages, coffer dams, foundations, bridges, gates, tunnels, excavations, wood and half timber houses, and various structural details; together with new and simple methods of finding the levels in construction, and the theory of trussing frames. Also including a concise treatise upon timber, notes on the woods used in carpentry, various tables, a glossary of terms and phrases connected with carpentry, and a chapter on the use of the tool square. By George Ellis, author of "Modern Practical Joinery," etc.; Vice-President of the Incorporated British Institute of Certified Carpenters. With about 1,100 illustrations. London: B. T. Batsford, 94 High Holborn, 1906. Price, 12s. 6d. net.

old way of using lines. The tool can also be used as a square, 2 ft. by 1 ft. 4 in., as a square and level or plumb rule, and also, when closed, as an ordinary spirit level.

Architectural Design.*

It is really difficult to understand what object was in view when it was decided to publish this book by Mr. Percy Marks. Architectural design has been the subject of much waste of good black ink during many generations on the part of many men greater than Mr. Marks. Ruskin wrote copiously and charmingly on it, but with doubtful value from an educational point of view. Violet le Duc wrote the greatest work on architectural construction and, incidentally, design; and he certainly achieved success with that masterpiece. It is the unfailing last resource of the bothered man who has to write an article for a building paper, or deliver an architectural lecture. If he knows the subject he may succeed in interesting his readers for a few minutes, or his audience for half an hour. But to write a text-book requires a little more than this, and therein Mr. Marks has not succeeded. An imposing list of subscribers prefaces the volume, and the style is pompous and artificial. The illustrations are mainly of the very crudest type. Many, very many, of the illustrations are only suitable as examples of what to avoid. We have never held that illustrations to be valuable in a text-book must of necessity be of a very high standard, but it is really farcical to include some of the examples. Some of the designs, too, praised by Mr. Marks are really dreadful—for instance, the awful suburban villa on page 24, which could hardly be worse—while Mr. Marks' observations on the subject of "pitch" in roofs are really childish.

DIAMOND NON-SLIP TREADS.

The method adopted by the Diamond Tread Co. for the manufacture of non-slip treads and other non-slip surfaces is, so far as we know, unique. The usual principle embodied in treads intended to be and to remain non-slipping is to embed in foundation plates of brass, steel or other tempered metal some soft material such as rubber, lead, wood, etc. Now, in the Diamond tread the exact opposite idea is availed of. The foundation plates are there, it is true, but they are filled with a composition made up of the hardest known artificial diamond grit. This substance always remains gritty, and is so hard that it is proof against wear, and that the hardest steel drill or file fails to make an impression on it. The company had a stand at the recent Building Trades Exhibition, where, amongst other things, they showed one tread which was taken from the steps of H.M. Army Clothing Works, Pimlico, London, and over which have passed 10,016,000 people. Another exhibit was a tread filled in brass which had been on the step of a Pullman Palace car in America for two years. In neither case was any apparent wear visible. These two exhibits alone are ample testimony to the value of the Diamond treads, full particulars of which may be obtained from the Diamond Tread Co., Ltd., 28 Victoria Street, London, S.W.

TENDERS.

Villa residence at Carrigaloe, Co. Cork, for the Right Hon. Lord Barrymore, in accordance with plans and specification prepared by W. H. Hill and Son, architects, Cork. Tender of Mr. Patrick Murphy, John Street, Cork, accepted at £590.

Consumptive Hospital, Clonmel Asylum. J. F. Fuller, F.S.A., architect. Quantities by Mr. D. W. Morris. Duggan, Cork, £4,623; Sheridan, Newbridge, £4,196; Good, Dublin, £4,150; Crampton, Dublin, £4,950; M'Loughlin and Harvey, Dublin, £3,995; J. Pemberton, Dublin, £3,971; W. Beckett, Dublin, £3,950; Flynn, Cork, £3,879; Ryan, Limerick, £3,877; Murphy, Cork, £3,870; Collen Brothers, Dublin, £3,846; Nolan, Waterford, £3,779; Ahern, Waterford, £3,773; Hull, Dublin, £3,685; Reid, Malahide, £3,669; Carnegie, Ballinasloe, £3,602; O'Mahony, Fermoy, £3,600; Hayes, Fermoy, £3,460; Hill, Cork, £3,339; Cleary, Clonmel, £3,200; Boles, Clonmel, £3,043; Holloway, Cahir, £2,938; Grant, Drumbane, £2,394.

COUNTY SURVEYORSHIP OF GALWAY.

At Galway County Council meeting on Wednesday there were thirteen applications for the position of County Surveyor. Mr. James Hardiman and Mr. Edward Lynam were the only two proposed. Mr. Hardiman was appointed by 21 votes to Mr. Lynam's 9.

* "The Principles of Architectural Design," by Percy L. Marks. London: Swan Sonnenschein & Co., Ltd., 26 High Street, Bloomsbury, price 7/6 net.

THE ARCHITECTURAL ASSOCIATION OF IRELAND.

The concluding general meeting of the present session of the above society was held at the rooms of the association, 15 South Frederick Lane, on Tuesday evening, May 28th, the President, Mr. Joseph Holloway, in the chair. There was a fair attendance.

The walls of the lecture hall were hung with close on one hundred drawings, submitted by the members in competition for the various prizes offered by the Association and the Royal Institute of Irish Architects, the whole forming a very creditable display, indicating that the architectural talent of the rising generation of architects will, at least, bear comparison with that of the preceding.

The minutes of the previous meeting having been read and signed, the Hon. Sec. read the result of the ballot for officers for the ensuing session, viz:—President R. M. Butler, F.R.I.B.A.; Vice-Presidents—Edwin Bradbury, M.R.I.A.I.; Lucius O'Callaghan, M.R.I.A.I. Committee—J. H. Webb, Harry Allberry, A.R.I.B.A.; H. G. Leask, P. L. Dickinson, G. F. Beckett, F. G. Hicks, F.R.I.B.A.; A. G. C. Millar, J. Holloway, J. A. Geoghegan. Hon. Treasurer—F. Hayes. Hon. Secretaries—R. Donnelly, C. H. Mitchell. Hon. Librarian and Registrar—G. G. Lynes. Hon. Auditors—C. L. Harrison, L. du P. Millar.

The reports of the Class of Design and Visits to Buildings were next read, and showed that last year's standard had been fully maintained.

The prize-winners were announced as follows:—A. A. Travelling Studentship, P. J. Munden; the Royal Institute Prize, for a design for a country hotel, won by C. C. Ramsay; the President's Prize, P. J. Munden; the Downe Bronze Medal for Sketches, H. T. O'Rourke; the Vice-President's Prize, C. Keefe; the Class of Design, P. J. Munden.

An announcement as to the annual excursion, to be held in Shakespeare's country from July 9th to 13th, was made by Mr. E. Bradbury.

The President then read his valedictory address, in which he dealt briefly on the year's progress and the recognition which the Association now receives amongst kindred English and Irish societies, and with the necessity for architects to depend more upon proportion and simplicity when dealing with native stone, instead of upon the ornamental carving more suitable for other materials and a less destructive atmosphere. He also referred to the new painting craze, which threatens to hide Dublin's charming limestone front under a glaring coat of inharmonious colours; of this the International Exhibition may be the cause. Touching briefly on Mr. Norman Shaw's victory over the mercantile spirit with regard to the new quadrant at Regent Street, the President concluded his address by referring to the successful exhibitions held by the Association during the year, which were visited by many of the public.

The President-elect was moved to the second chair.

A vote of thanks to the President for his dignified conduct in the chair was proposed by Mr. Allberry and seconded by Mr. F. Shaw, and was carried by acclamation.

A vote of thanks to the Class Secretaries was proposed by Mr. F. Shaw, and seconded by Mr. J. W. Beckett, and carried.

Mr. A. E. Bradbury proposed a vote of thanks to the Hon. Secretaries and the Hon. Treasurer, which was seconded by Mr. A. G. C. Millar, and carried unanimously.

The exhibition of drawings is open to the public until Friday evening next.

OUR ILLUSTRATIONS.

Milltown Golf Club.

The designs illustrated were submitted in limited competition. The committee, however, acting on the report of their assessor, decided to reduce the accommodation specified in the conditions, and, without giving the competitors an opportunity of preparing amended schemes, gave the work to their assessor! Perspective illustrating Messrs. Donnelly and Moore's design was prepared subsequent to competition.

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VOL. XLIX.	JUNE 1, 1907.	No. 11
CONTENTS.		PAGE
Topical Touches	...	377
The Exhibition.—The Art Collection	...	378
Reviews	...	382
Diamond Non-Slip Treads	...	385
The Architectural Association of Ireland	...	385
Our Illustrations	...	385
LEADING ARTICLE:—		
The Strike in Tralee	...	386
COMMENTS:—		
Irish Post Offices	...	388
Our Southern Letter	...	390
All about Ozouair	...	390
Reconstruction of Boniconian Church, Co. Mayo	...	390
Building News	...	393
The Society of Architects	...	394
Imports	...	394
The Irish International Exhibition	...	397
Engineering Items	...	401
The Bexhill Casement Window	...	401

THE STRIKE IN TRALEE.

The dispute between Mr. P. Murphy, builder, Tralee, and his workmen, which has been going on for some time, still continues. It commenced with the carpenters, who, failing to obtain a satisfactory settlement, induced the masons and other trades to go out in sympathy with them. The following particulars are from the *Kerry News*:—

"Some two months since the carpenters who were working for Mr. Murphy in Tralee went on strike, without, it is alleged, giving the usual notice, and induced the Killarney men to join them. A few days after the members of the Tralee Branch of the Carpenters' Society approached Mr. Murphy at his office, and stated that their reason for striking was that the son of the foreman (Mr. Power) would not join their society, and that Mr. Power, senior, had made improper remarks towards them individually. They demanded Mr. Power's dismissal, stating that they were prepared to substantiate the charges which they had made against him. Mr. Murphy did not accede to this request, and stated that he would leave the settlement of the dispute to any representative man in the town. To this course the men would not agree, and held a series of meetings at their rooms. Ultimately Mr. T. Chandler, J.P., Manchester, General Secretary of the Trades Council, journeyed to Tralee in the hope of being able to heal the rupture. He (General Secretary) had lengthened conversations with Mr. Murphy, and also attended the meetings of the Carpenters' Society (Tralee Branch). Mr. Chandler, however, left for Manchester without being able to bring the disputants to an agreement. So matters have remained since his departure. This (Wednesday) morning the Branch President of the Carpenters' Society called at this office, and asked us to publish the following:—

To the Editor.

Moyderwell, April 17th, 1907.

Dear Sir,—As it has been circulated through the town that the Executive of our Society has decided against us, and are about sending Society men to Mr. Murphy's, for the information of the public I

would ask you to publish the following telegram, typewritten copies of which I have received from Manchester. I need make no comment; they can speak for themselves.—I remain, dear sir, yours truly,

WILLIAM MYLES,
Branch President.

At the E.C. meeting on Friday the following telegram from Mr. Murphy was before them:—"Accept your settlement of strike; made every effort to induce Killarney men to resume work; Tralee Branch won't allow this; please wire me authority to procure Society men from Cork or elsewhere."

'MURPHY.'

"In answer to the foregoing Mr. Murphy received the following wire:—

"Men's determination not to resume work in same employ as Mr. Power firmer than ever. Council cannot, therefore, under such circumstances compel them to do so; nor can they allow other members to take their places. Therefore, the settlement of the dispute is entirely in your hands."

'CHANDLER.'

"On the part of Mr. Murphy it was intimated that Mr. Power, junior, was prepared to join the Tralee Branch of the Society, and that was what the carpenters actually struck for.

"It is stated that Mr. Murphy made an offer to the men that he would create Mr. Power general foreman, in which position he would have no definite control over the carpenters, but they would not consent to this, and seem determined in their demand for his dismissal. Mr. Power has been subjected to some inconvenience latterly when going to and from his house in Moyderwell."

The following correspondence in the *Kerry Sentinel* throws some further light on the strange action of the Amalgamated Society of Carpenters and Joiners in this matter:—

"To the Editor of the *Kerry Sentinel*."

"Dear Sir,—The best answer to Mr. Myles' letter which appeared in the *Kerry Star* of the 18th inst., is the enclosed from the General Secretary of the Amalgamated Society of Carpenters and Joiners, who came specially to Tralee to investigate matters relative to dispute."

"I may say, before the arrival of Mr. Chandler, I wrote him, stating that I would accept his decision, or the decision of anyone sent by the society; and on receipt of his letter (enclosed) I immediately telegraphed my acceptance and confirmation of same."

"This, however, the men refused to accept, though the letter was the decision of their own Executive.—Yours faithfully,

"P. MURPHY."

Amalgamated Society of Carpenters
and Joiners,
General Offices, 95 Brunswick Street,
Ardwick Green, Manchester,
April 8th, '07.

To Mr. P. Murphy.

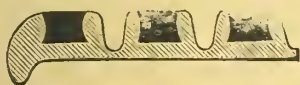
Dear Sir,—On reporting to my Executive on Saturday last the offer made by you, with a view to bringing about a settlement of the existing dispute, they regarded it as a very fair one, and I have to-day communicated with our Tralee Branch, insisting upon its acceptance. To prevent any misunderstanding, I beg to repeat your offer:—

That you would relieve Power of the duty of acting as shop foreman and giving instructions to the carpenters in your employ, but retaining his services as a general foreman over the other trades.

That to prevent in future the recurrence of such hasty action on the part of the carpenters, an arrangement come to so that if they have any complaints to make, either against their foreman or in other details of management, that you be afforded

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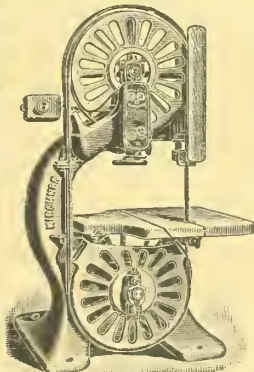
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an opportunity of investigating and dealing with same, and if not then satisfied, the matter be referred to me to adjudicate upon, and you would accept my decision.

That on the acceptance of this proposal, and pending the completion of these arrangements, work to be resumed at the Killarney job. Trusting I have correctly described your offer, and that the existing dispute may now speedily terminate—Yours very truly,

F. CHANDLER, General Secretary.

The society, it would appear, considered Mr. Murphy's offer fair, and very properly decided to insist on a settlement; but when the carpenters determined not to resume work, the society, even though they considered Mr. Murphy had made a fair offer, ceased to insist, and declined to allow other members of the A. S. of C. and J. to enter Mr. Murphy's employment.

We have always looked on the councils of the great trade societies as a power working for good in many cases by checking rash and hasty action, possibly an injustice on the part of a branch Executive; but certainly in this case the Council of the A. S. of C. and J. do not appear to have played that part.

From the lengthy reports and letters that have appeared in the public Press on both sides of this dispute, it seems to occupy more attention than it deserves. There is no trade principle involved, no difference as to wages or hours of work; simply a question as to whether Mr. Murphy should procure his foreman in Tralee or bring one from outside. The petty parochialism of the entire dispute is emphasised by the fact that the foreman employed is himself a member of the Dublin Branch of the A. S. of C. and J. For this strange quarrel the masons and other trades are called out, and much suffering inflicted on labourers and others, who are no parties to it in any way.

It is to be hoped that a little reason and common-sense exercised by someone in authority will put an end to the present state of things in Tralee.

COMMENTS.

Irish Post Offices.

In a letter in the "Times" of Friday last week Mr. Sydney C. Cockerell drew public attention (in connection with a Parliamentary debate on the Post Office) to the poor and commonplace character of the Post Office buildings erected in various towns all over the country. Commenting thereon our contemporary the "Builder" observes that these buildings are typical of official architecture; they are (in the case of the more important ones) examples of what are called "handsome buildings," erected at some cost and in a kind of correct conventional style, but wholly destitute of architectural interest or character. As Mr. Cockerell said, an opportunity is given to the Post Office of setting a good example. Our contemporary contrasts the French system with the English, greatly to the advantage of the French, and adds the query, "Are the Post Offices in Ireland carried out on the same system? In the small town of Westport (Mayo), which we had occasion to visit a year or two ago, we noticed that the local Post Office was a building of remarkably good and picturesque character; it was certainly not turned out of the same mint as the English Post Office buildings." We endorse what is said of the Westport P.O., which we know well. It was designed by Mr. Howard Pentland, F.R.I.B.A., who was also responsible for the excellent little Post Office at Castlebar, in the same county. Another good Post Office is at Omagh, by Mr. Robert Cochrane, F.R.I.B.A. Both architects are Surveyors to the office of Public Works.

Says "Punch," fashions change. The Architectural Room at the Royal Academy is no longer the haunt of lovers. Young couples who wish to be alone now board an Embankment tram.

CORRESPONDENCE.

The Queenstown Cathedral.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—With your usual kindness, I beg the favour of space in your journal to make public the following, viz.:—Having by chance dropped upon a late issue of your valuable paper, I noticed a paragraph from which I learned that at the Queenstown Cathedral a new side chapel and sacristy are to be constructed from the plan of Geo. C. Ashlin, Esq., our famous architect. Being an old Dalkey stonemason, I regretted much to be informed from the article that in the erecting of these buildings that the stone does not come from Dalkey. Now, as this beautiful cathedral, at its commencement to finish, was supplied by Dalkey granite, Mr. C. G. Doran, who was the clerk of works at the time, thirty years ago, came to Dalkey from Queenstown for the purpose of inspecting the ashlar dressings, etc., before being shipped from Bullock Harbour, and also, about seventeen years ago, I have seen Dalkey granite being shipped by a Mr. Dixon for the completion of a new baptistery which was being constructed by a Mr. M'Mullen, builder, of Cork, is it not a pity that Dalkey granite could not be used in whole for this splendid building and not Dublin mountain stone. In anticipation, I remain, yours, etc.,

MICHAEL MACKLIN.

[We do not quite understand our correspondent's complaint nor his disparaging remark as to "Dublin mountain stone." Surely he does not suggest that Dalkey granite is better than, or even equal to, "Co. Dublin mountain stone," or Ballyknocken granite?—Ed. I.B.]

ABOUT POLISHED FLOORS.

The polished wood floor is always delightful. Given the right kind of wood, the right kind of laying, and a good polish, and there is really no other floor which can compare with it. Besides this, it is of all floors the healthiest—it does not harbour germs, dirt does not sink into it, and therefore it is most easily cleaned. Hence it is that in public institutions, and particularly in hospitals, the polished wood floor is now regarded as an indispensable feature. It has in hackneyed parlance, filled a want, but then, on the other hand, it created another, and that other was the correct polish—a polish which would give the floors a bright hard, durable, and, if possible, waterproof surface. In the "Ronuk" sanitary polish these requirements have been met, and its use has definitely superseded all the earlier methods of cleaning and polishing floors. "Ronuk" is, we understand, used in some two-thirds of the hospitals and public institutions of Great Britain and Ireland, and has come to be recognised as the standard floor polish. It is, of course, mainly used for hard wood floors, but in conjunction with a special staining it may be applied to ordinary deal floors, which are in fair condition, when a really presentable polished surface is obtained. "Ronuk" is also suitable for treating linoleum, furniture, carved woodwork, leather, etc., and is therefore of high domestic value. Particulars and samples may be obtained from "Ronuk," Ltd., Portslade, near Brighton.

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ORN. GUTTERS
SPIRAL STAIRS
ROOF PLATES
VENTILATORS
BAULSTERS
FOUNTAINS
GRATINGS
URINALS
PUMPS
CLOSETS
GATE PIERS
R. W. PIPES
BATHS, SINKS
WASHSTANDS
GARDEN SEATS
SEAT STANDARDS
CATTLE TROUGHES
SCHOOL FITTINGS

ELECTRIC LIGHT PILLARS, BRACKETS, CARRIERS AND WIREWAYS.

MACFARLANE'S GLASS ENAMELLED DRAIN AND SOIL PIPES.

OUR SOUTHERN LETTER.

(FROM OUR CORRESPONDENT).

Waterworks, Etc.

The Mallow Rural District Council have received tenders for the construction of intake works and service reservoir, and for providing and laying about 16,000 yards of cast-iron water mains, together with valves, hydrants, special castings, and other works in connection with the water supply of Buttevant.

The plans, specification, and quantities have been prepared by Mr. H. A. Cutler, A.M.I.C.E., and the works are to be executed under the superintendence of Mr. W. H. Hill, junr.

Fourteen tenders were sent in, and the three lowest are to be submitted for Mr. Cutler to report on. The lowest tender was for the sum of £5,551, sent in by Mr. William Baird, contractor, Dublin. The Local Government Board have sanctioned a loan of £6,500 for the purpose of providing this water supply.

The construction of the septic tank and outfall works in connection with the Mitchelstown sewage disposal has been commenced by Mr. Denis Creedon, contractor, Fermoy. This work is to cost the sum of £905, and is rendered necessary owing to the pollution of the River Gradogue by the sewage from the town.

The residents of Rochestown and the neighbourhood have applied to the Harbour Board of Cork for their permission and co-operation in connection with the proposal to erect a bridge across the Douglas River next the existing railway bridge, which would shorten the distance between Blackrock and Rochestown by about three miles. The matter was referred to the harbour engineer for him to report on.

The Cork County Council have decided to construct a boat slip at Tranadough, near Toe Head, at an estimated cost of £500, the Congested Districts Board agreeing to contribute the sum of £250 towards the cost of the work.

A special committee at Clonakilty have been investigating the various methods of public lighting in connection with the town supply, and have drawn up a comparison between electric light and Mansfield oil gas as regards cost and annual expenditure.

The capital expenditure for electric light would be £2,750; depreciation, £80; annual expenditure, £528; and estimated receipts, £670.

The capital expenditure for Mansfield oil gas would be £3,500; depreciation, £87; annual expenditure, £652; and estimated receipts, £550.

The Kinsale Urban District Council have accepted the tender of Messrs. Robert Buttiner and Sons, Garretstown, for the erection of ten labourers' dwellings at Worldsend for the sum of £1,440, subject to the sanction of the Board of Public Works.

The Public Health Committee have now practically approved of the scheme for the disposal of the sewage of the Lough district, and have agreed to allow the effluent to pass into the Corporation sewer, provided that it is so treated as to render it innocuous. It is proposed that a septic tank installation and suitable tank treatment be provided to attain this object.

The Cork Rural District Council have accepted the report of Messrs. Evans and Coakley, engineers, in reference to the extension of the existing outfall of the sewer from Douglas Village into the Douglas River, and have recommended that the work be carried out at an estimated cost of £900, subject to the approval of the Public Health Committee.

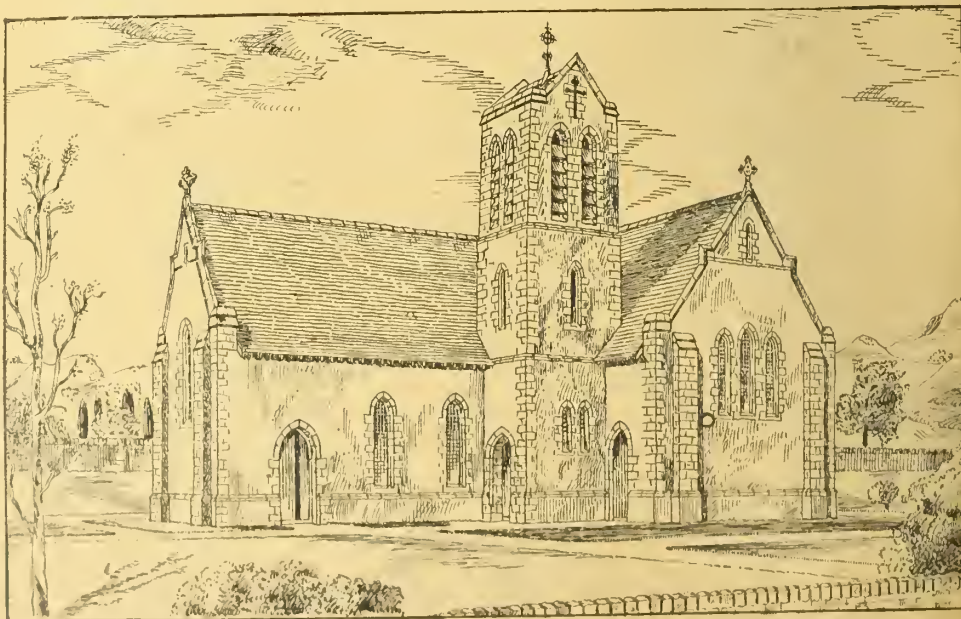
RECONSTRUCTION OF BONICONLAN CHURCH, CO. MAYO.

This is an old-fashioned country church, with low walls and low-pitched roof. The present scheme provides for raising the walls 3ft. 6in., and putting on a new timber groined roof of very simple and strong design; and for building a plain tower and belfry. The gables throughout are new, and treated so as to give a better and more ecclesiastical appearance to the structure. The other works include new high altar, new floor, new organ gallery, etc., etc. The architects are Messrs. Doolin, Butler, and Donnelly, of Dublin.

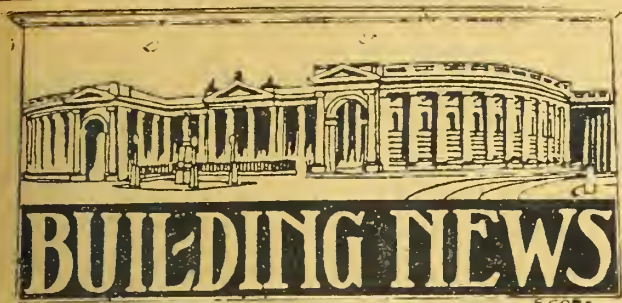
ALL ABOUT OZONAIR.

We have received from Ozonair, Ltd., 27 Chancery Lane, London, W.C., a copy of their pamphlet bearing the above title, and have found it very interesting. Those of our readers who are scientifically inclined will hardly require to be told what ozone is, and even those who are without any training in chemical science will be aware that ozone, whatever its composition, is a most health-giving something in the air, and usually associated with the seaside. Well, ozone, as this pamphlet reminds us is concentrated oxygen. Its chemical symbol is O₃, and it is, as it were, a compound which oxygen forms with itself wherein the life-giving element differs, so far as we can recall, from any other element gaseous, liquid or solid. Now, this compound (if we may so style it) is an unstable one, splitting up on the least provocation into its components, namely, oxygen and oxygen. It is, in other words, the greatest oxidiser known, because in oxidising it becomes all oxygen, and oxygen only, not oxygen and something else. What follows? Well, for one thing, it means that ozone is Nature's own ventilator and antiseptic agent. It is the scavenger and disinfectant of the atmosphere, and wherever even a trace of it is found in air (as in a room, for instance) the assumption may safely be made that no germ exists there. Such is the hygienic aspect of ozone, but its oxidising properties render it of high value in a great number of the arts and manufactures, in surgery and the treatment of various forms of disease. The question, then, arises—Can it be artificially produced? It can; and in fact it has long been known that the passage of an electric spark through oxygen always produces ozone, besides which it can be secured by a number of chemical reactions. The fault of the latter method is, however, that other, and often deleterious, compounds are formed at the same time. The simplest and best means of obtaining ozone is, therefore, the passing of an electrical discharge through air, and the most approved method of accomplishing this is by the aid of what is known as the "silent discharge." This is the system adopted in all the apparatus manufactured by Ozonair, Ltd., and it has enabled them to put on the market Ozonisers which generate pure ozone in large quantities, in a continuous manner, for all purposes, sanitary, commercial, etc., at a low cost. We have not space to actually describe the machines or to set out in detail the numerous purposes to which ozone may be applied. The whole subject is treated both ably and in an entertaining manner in the pamphlet to which we refer, and we would recommend our readers to apply to the company for a copy.

Helliwell and Co., Limited, of Brighouse, Yorkshire, and 11 Victoria Street, Westminster, London, have received a further large contract for the patent roof glazing on their "Helliwell Perfection" system at Messrs. Humber's new works, Coventry. Also further contracts for the North British Railway, College Street Warehouse, Furness Railway, Barrow; Streatham Car Sheds for the London County Council, Hackney Library, Messrs. J. Lysaght, Ltd., St. Vincent Ironworks, Bristol; Royal Exchange, London; Melksham Drill Hall. Also for Messrs. Hattersley and Davidson's Garage, Sheffield, and Messrs. S. Osborn and Co., Ltd., Sheffield. Messrs. Helliwell's Dublin agent is Mr. M. F. Buchanan, College Park Chambers, Dublin.



Reconstruction of the Parish Church, Boniconlan, Diocese of Achonry, Rev. A. Callaghan, P.P.



Bailieboro'.—At a meeting of the Bailieboro' District Council, Mr. Thomas Daniel, architect, sent in a letter, regretting that he could not find time to carry out the new scheme under the Labourers Acts, and thanking the Council for their confidence in him. Mr. Cooney moved that Mr. Daniel's resignation be accepted with regret. Mr. M'Intyre seconded the motion, and it was passed.

Banbridge.—Estimates are at present being asked for alterations to premises at present in occupation by the Northern Bank. The architect is Mr. G. W. Ferguson, C.E., Royal-avenue, Belfast.

Belfast.—It is proposed to provide villas (on the villa colony system) for the patients at Grosvenor-street Asylum and Ballymena, with administrative buildings, etc., at a total cost of £110,000. The matter is to be considered next week by the Finance Committee of the Corporation.

Extensive and valuable additions are being made just now to Queen's College, Belfast. These consist chiefly of laboratories, lecture-rooms, and other structures of that character, and will, it is understood, enormously increase the facilities for teaching and research enjoyed by the college. The cost of their erection is to be defrayed at the joint expense of the Exchequer and the Better Equipment Fund of the College. In addition to these structures, as the College property is being so much enhanced in value, the old dwarf wall by which it has hitherto been surrounded, and which was falling into a ruinous condition, is being replaced by a handsome and substantial iron railing, with a gate lodge and towers, at the sole cost of the Treasury, who naturally desire the property to be more securely protected than it has hitherto been. At the last meeting of the Council of the Better Equipment Fund, a letter was read from the Board of Works conveying the intention to commemorate the term of office of the present president by inscribing his name on the new tower, and this has accordingly been done, with the cordial acquiescence of the College Council, who doubtless recognise, as do the general public, the enormous advances which Queen's College has made under the regime of President Hamilton. The whole of the above work has been carried out under the superintendence and according to the plans and specifications of the principal surveyor, Dr. Cochran, F.R.I.B.A., Board of Works, and the contractors are Messrs. Robert Corry, Ltd., Belfast.

Tenders are at present being considered for the construction of an organ chamber and sundry alterations to Clarence-place Hall. Quantities were supplied by Messrs. McCarthy and Brookes, Scottish Provident Buildings. The architect is Mr. W. J. Fennell, F.R.I.B.A., 2 Wellington-place.

Mr. H. Keith's tender has been accepted for building an addition to a house in University-square for Dr. Mitchell. The architect is Mr. W. J. Fennell, F.R.I.B.A., 2 Wellington-place.

Another new theatre is to be added to the Belfast places of amusement. The latest venture, we understand, is to be built in Station-street, on a site close to the Belfast and County Down Railway. The building will be about 150 feet long and 73 feet wide, with a height of about 70 feet. The front is to be built of brick, with white stone and terra cotta dressings. Messrs. McCarthy and Brookes, quantity surveyors, Scottish Provident Buildings, are at present taking out the quantities, and it is expected that tenders will be asked for in the course of a fortnight. The architect for the work is Mr. Charles A. Aikin, Rosemary-street.

Ballymacnab.—Mr. John E. M'Gahon, Roden Place, Dundalk, the architect of a new church at Granmore, Co. Armagh, invites tenders for the erection of the building. The plans and specifications are to be seen at the Parochial House, Ballymacnab, or at Mr. M'Gahon's office. The tenders must be delivered to the Very Rev. Patk. Corr, P.P., Ballymacnab, not later than the 8th of June.

Castlebar.—The Rural District Council invite tenders for the execution of certain work in connection with a spring well in the village of Lisiniska, and also for repairs in connection with the wall round Addergoole Burial Ground.

Cootehill.—At the meeting of the Cootehill (Co. Cavan) Board of Guardians on Friday, a discussion took place with regard to the proposed new dispensary and dispensary residence in the Tullyvin district. It was decided to invite proposals from architects for the drawing of the necessary plans and specifications, and superintending the work, etc.

LABOURERS' COTTAGES.—A special meeting of the Cootehill (No. 2) Co. Monaghan Rural District Council was held to adopt the draft scheme, submitted at the last meeting, under the Labourers Acts. The estimated cost of the scheme for providing 51 cottages and plots, which was unanimously adopted, amounts to a total of £10,162, of which £7,140 is for building alone, and the remainder being the cost of the acquisition of land, legal, engineering, and other expenses. There was also a scheme adopted for providing additional allotments and half-acres, the estimated cost being £986.

CarnDONAGH.—The Inishowen Agricultural Society invite tenders for the erection of a composite iron and wood building for the Home Industries on the Show Ground at CarnDONAGH, in accordance with plan and specification prepared by Mr. F. Nolan, B.E., Greencastle. Tenders will be received on 3rd June.

Co. Kildare.—Mr. P. L. Dickenson, M.R.I.A.I., C.E., 13 South Frederick-street, Dublin, has prepared plans and specifications for alterations to the house of T. Anderson, Esq., Lentstown.

Coleraine.—Mr. H. Keith, contractor, Belfast, has secured the contract for extensive additions to Coleraine Distillery, for Messrs. Brown, Corbett and Co., Ltd. The architect for the work is Mr. Elgin.

Castletownberehaven.—Messrs. Doolin, Butler and Donnelly, architects, Dawson Chambers, Dublin, are advertising for tenders for the erection of a new parish church at Castletownberehaven in accordance with the plans, etc., prepared by them. Bills of quantities and forms of tender can be had on application to D. W. Morris, Esq., surveyor, 68 Harcourt Street, Dublin; whilst drawings can be inspected at the architect's office, or at the Parochial House, Castletownberehaven.

Dublin.—St. Mary's Dominican Convent, Cabra.—A new boys' college is being erected here as a primary school for youths. The building will be large and imposing, designed in a modern period of classic; it will rise three storeys high, the height to the eaves being 48 feet. The total frontage, when complete, will exceed 120 feet, with a depth of about 40 feet. A large and ornamental ventilator will be centrally situated on the roof, acting as an extract vent for the entire building. The accommodation includes a very fine recreation hall, 66 ft. long by 30 ft. wide and 22 ft. to ceiling, treated with decorated fibrous plaster in the Corinthian order. The total estimated cost exceeds £8,000. The erection of the building has been entrusted to the capable hands of Mr. Molloy, Dublin, and the architect responsible for the whole is Mr. Horace T. O'Rourke.

The Pembroke Urban District Council invite tenders for the erection of a battery house and all matters connected therewith at the existing electric light station, South Lotts-road. Tenders will be received up to 12 p.m., May 31st.

Mr. Mackey, Camden-street, is carrying out alterations and improvements to Miss O'Leary's flower store in that street, according to the plans and specification of Mr. P. L. Dickenson, 10 South Frederick-street, Dublin.

The North Dublin Rural District Council invite tenders for building 36 labourers' cottages, viz., 10 single, 3 double, and one block each of 3, 4, 6, and 7, according to plans and specifications. Tenders close 12 noon, June 12th.

Dunmurry.—A new Orange Hall will be commenced at the end of August at Station-street, Dunmurry. It will be designed for a large hall for general purposes on the second floor. The lodge-room, cloak-room, and other apartments will be underneath.

Downpatrick.—The corner stone of a new Masonic Hall has just been laid at Downpatrick. The plans and specifications are by Mr. Vincent Craig, F.R.I.B.A., Belfast.

Greenisland.—A bungalow is at present being built here by Mr. H. Keith, contractor, Belfast. The architect is Mr. N. Fitzsimons, A.R.I.B.A., Lombard-street, Belfast.

Jordanstown.—Tenders have been received for the carrying out of alterations and additions to the chapel at Jordans-town, (Co. Meath), for the Very Rev. Thos. Gilsonan, P.P. Mr. Thomas F. M'Namara, 50 Dawson-street, Dublin, and at St. Michael's, Enfield, Co. Meath, is the architect.

Kingstown.—One hundred and sixty applications have been received by the Urban District Council in reply to their advertisement for competitive designs for the erection of dwellings to house the very poor in Kingstown. Several of the competitors have asked for additional information, and we understand that the engineer for the Urban Council (Mr.

Joseph W. Berry, M.Inst.C.E.I.), is preparing a circular, which will be sent to all competitors.

Kilkenny.—Competitive designs, specification and bill of quantities are invited for the erection of a Carnegie Free Library by the Kilkenny Corporation. Cost of building not to exceed £1,800. Designs to be sent in on Tuesday, 2nd July.

Lusk.—The Sub-Committee of the Lusk Library have selected the plans of Mr. Anthony Scott, M.S.A., for the building of the proposed library. Mr. Geo. L. O'Connor, architect, also submitted plans.

Lissan.—The memorial stone of a new Catholic Church at Lissan, Co. Tyrone, was laid and blessed by the Very Rev. Canon Rice, P.P., V.F., Cookstown. The new church is being erected through the bequest of the late Mr. Patrick Corr, of Lissan, and through the munificence of Mr. Matthew Corr, a native of Lissan, and now of Philadelphia; free of all contributions from the people of the district. In November last the work of erection was begun. The new church, when completed, will cost about £6,000. Messrs. Ashlin and Coleman, Dawson-street, Dublin, are the architects.

Londonderry.—It is reported that the negotiations recently concluded between the Honourable the Irish Society and a large number of their tenants in Waterloo-street will ere long result in a clean sweep being made of all the old buildings on the left-hand side of that street between the substantial new premises of Mr. D. S. Irvine and Butcher Gate. The rebuilding, while giving much-needed employment, will result in removing many old landmarks in the neighbourhood. The plans for the upper portion—from Castle Gate to Butcher Gate—have been prepared by Mr. R. Eccles Buchanan. The houses on the lower side of the Gate will be built from the plans of Mr. P. H. Elliott and Mr. J. P. M'Grath. The plans for one or two of the houses have not yet been approved of by the Corporation. The old pawnshop outside the Gate, which now serves the purpose of a billposting hoarding, will be transformed into schools for the Rev. W. B. MacFeely, B.D., Adm., St. Eugene's Cathedral, and will, no doubt, form a pleasing architectural feature in the centre of the new buildings. As the ground follows the line of the City Wall and tapers towards Butcher Gate, the buildings will vary in size from a substantial three-storey house to what will be practically lock-up shops at the Butcher Gate end.

The Department of Agriculture and Technical Instruction is about to erect a very neat and substantial school at Crawford-square, which will be adjacent to Victoria High School. The school, which will be on a plot of ground now used as a lawn tennis court, is one of a number which the Department have decided on providing throughout Ireland as an experiment in the training of young women in all the practical elements of housekeeping, including cooking, laundry work, etc. The plans, prepared by Mr. M. A. Robinson, C.E., have been approved of by the Corporation, and the work will be proceeded with immediately. The new building, which has a frontage of 46 feet, with a depth of 76 feet from front to rear, has an attractive façade, and will be admirably equipped. It will be built with Belfast facing brick, and finished with hip roof. On the ground floor there will be class-room, dining-room, kitchen, cloak-rooms, and all the necessary conveniences for school purposes. On the second floor will be a spacious dormitory over the dining-room, and a large sitting or common room for use of the lady students. A corridor will run the full length of the building, and on each side will be the bedrooms. A feature of the building will be the fine circular bay windows, which will give a flood of light to all the apartments. The entrance door will be approached by a number of steps, and all the sanitary and lavatory arrangements will be of the most modern and up-to-date description.

With regard to other buildings in the city, it may be mentioned that the Corporation have approved of plans for the rebuilding of houses in Bishop and Henrietta-streets, for Mr. Patrick Bryson, and a dwelling-house at Marlborough avenue for Mr. William Cooke. Negotiations are also in progress for the building of a new hotel in Foyle-street, adjacent to the Great Northern Railway, but the plans have not yet been approved of.

Mullingar.—Plans and specifications are being prepared by Mr. Lucius O'Callaghan, M.R.I.A.I., South Frederick-street, for new stable, piggeries, etc., and cut-stone gate, pier, and entrance gates at the College, Mullingar, for the Most Rev. Dr. Gaughran, Lord Bishop of Meath, and tenders are invited. The plumbing work will also be shortly put in hands.

Monaghan.—A large addition is about to be built to St. M'Cartan's Seminary, at Monaghan. Architecturally, it will be in keeping with the existing buildings. A number of tenders have been received, but the contract has not yet

been declared. Mr. J. J. McDonnell, J.P., M.R.I.A., Belfast, is the architect.

The work of rebuilding the premises known as the Diamond Drapery Co. (Messrs. Pim and Co., Dublin), which was destroyed by fire (as well as the adjoining establishment of Mr. Johnston's) a few months ago in the Diamond, Monaghan, is progressing rapidly. Mr. P. Nolan, J.P. builder, Monaghan, has secured the contract, and he has a good staff of men engaged on the work.

Tipperary.—Messrs. Holloway, contractors, Cahir, are at present engaged upon a new residence for Mr. Gale, of this town. The plans and specifications are by Mr. F. W. Higginbotham, M.Inst.C.E., 9 Lower Sackville-street, Dublin.

Estimates will also shortly be invited for a new residence at Shanbally according to the designs of Mr. Higginbotham.

Tallaght.—Tenders are invited for rebuilding the house lately destroyed by fire at St. Mary's, Tallaght. The plans and specification have been prepared by Mr. W. A. Scott, 45 Mountjoy-square.

THE LABOURERS ACT.

The following Rural District Councils have made improvement schemes in pursuance of the Labourers (Ireland) Acts, 1883 to 1906:—Killadysert, estimated cost, £8,590; Rathdown No. 2, £16,400; Thomastown, £33,905; Strabane No. 2, £64,500; Shillelagh, £10,389; South Dublin, £61,950.

THE SOCIETY OF ARCHITECTS.

Travelling Studentship, 1907.—Result of the Competition.

Twenty-three sets of designs were received in this competition, and the Council has awarded the first place to "Mac," and honourable mention to "Celer," who receives a special prize from the President (Mr. Albert E. Pridmore). The names and addresses of the successful competitors are—1. Travelling Studentship (£25 and silver medal), Mr. J. Drummond Murdoch, 1 Comiston Place, Edinburgh; 2, Honourable Mention (President's Prize), Mr. Hubert Savage, 23 Cranley Gardens, Muswell Hill, N.

These designs and also those submitted in the "Bungalows" Competition will be on view during the week commencing May 27th, at the Society's premises, and subsequently at Devonport and other centres.

IMPORTS.

Port of Dublin.

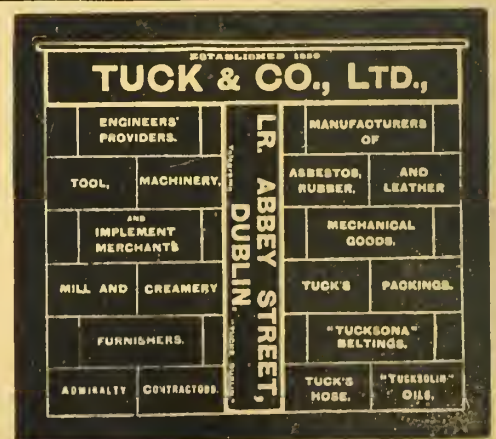
May 18th—Per Velinheli, from Port Dinorwic, 100 tons slates, Brooks, Thomas and Co. Ltd.

May 21st—Per Eros, from Sundswall, 122,137 pcs. floorings, battens, and scantlings, T. Dixon and Sons. Per A. W. Kaffemann, from Danzig, 2,383 pcs. timber, T. and C. Martin, Ltd. Per City of Frankfort, from Hamburg, 5 cases window glass, to order. Per Glide, from Carnlough, 120 tons whiting; H. M'Dermott. Per Brilliant, from Rochester, 850 tons cement, MacKenzie and Co. Per Lady Martin, from London, 500 sacks cement, T. Dockrell, Son and Co., Ltd.

May 23rd—Per Winga, from Goteborg, 6 cases turned wood, 3,600 bdls. laths, 1,780 pcs. planed boards, 1,194 pcs. battens, 270 doors, to order.

May 27th—Per Olaf, from Darien, 1,921 logs sawn p. pine, 291 pcs. p. pine deals, W. and L. Crowe, Ltd. Per Norna, from Mo and Domsjo, 174,828 pcs. flooring boards and battens, R. Martin and Co.

May 28th—Per Fred, from Shoreham, 300 tons cement, W. Richardson.



ENGINEERING SECTION.

THE IRISH INTERNATIONAL EXHIBITION.

FURTHER IMPRESSIONS OF THE PALACE OF MECHANICAL ARTS.

In dealing, in the last issue, with the various printing installations, we omitted to mention the extensive stall of Messrs. John Shuley and Co., of Dublin, at which a capable staff of employees may be seen printing and lithographing. In addition, there is a special machine erected for pen-making, and it is interesting to watch the deftness and speed with which a complete steel pen is formed from a flat sheet of metal. In proximity to this stall is a very complete exhibit of Slingsley's patent trucks, handcarts, and wheelbarrows; a collection of these most useful articles should not be overlooked. In this article it is intended to deal primarily with such exhibits as will be of especial interest to engineers, but we cannot refrain from mentioning the very imposing display which is made by the Carron Company, whose showrooms are in Grafton Street, Dublin. Amongst the goods exhibited are engineers' and shipbuilders' furnishings, and large independent coal, gas, steam and electric cooking ranges, suitable for institutions. The economical devices recently adopted in these costly articles are extremely interesting, and, while the engineer is studying these, the samples of "Carron pig-iron," and the materials used in its production, his better-half will doubtless be busily engaged in criticising the numerous domestic ranges, which, with their innumerable patent arrangements for fuel and time-saving, are passing from the domain of the architect to that of the engineer, and are a startling advance on the old-fashioned kitchen of a decade ago.

Messrs. Ross and Walpole, Limited, the well-known Dublin engineers, have a very interesting display showing the extensive nature of their work. Prominent amongst the exhibits is a marine boiler, built to Lloyd's requirements, and destined for one of Guinness' river launches; also a tip waggon, designed for the same firm. In the front of the stand, and facing the centre aisle, are a pair of locomotive cylinders, cast for the Dublin and South-Eastern Railway, and these are remarkably fine specimens of their type.

Messrs. Musgrave and Co., Ltd., a firm whose name is almost a household word in this country, have, as may be expected, a large and miscellaneous display of their manufactured goods, including a scale model of a three-stall stable and two loose boxes. There are also a number of patent "Ulster" fans for ventilation and mechanical draught, for either steam or electric power, and it will be remembered that this firm installed the fans for induced draught in the Exhibition boiler-house. Close at hand the Greenmount Oil Co., Ltd., of Harold's Cross, Dublin, have contrived to erect a most effective stand of lubricating and other oils, and petroleum jellies, a very complete object-lesson of those necessary adjuncts to the engine-room.

In the large hall we sought in vain for an exhibition of mechanical art as applied to the motor industry, and it was not until leaving that we discovered, in modest retirement in the south-west corner of the building, what we believe to be the only motor exhibit displayed, and it is well capable of sustaining this unique honour. The 16 h.p. two-cylinder chassis is not of home manufacture, as it was constructed by the Albion Motor Car Co., Ltd., of Glasgow; but the double landaulette body is the work of Messrs. J. Colclough and Sons, of Duke Street, Dublin, and reflects great credit on the firm by its workmanship and graceful appearance. The interior and side lamps are lit by electricity, as is now usual in the best type of this kind. But if transportation along the King's highway has been somewhat neglected, the four chief railway companies of Ireland have contributed a magnificent display, which is naturally attracting a large amount of general and expert attention, more especially as the exhibits have been designed and entirely erected in this country, and Irish materials employed as far as consistent with economical construction. The Great Southern and Western Railway Co. show the only complete locomotive in the building, and it is a worthy representative, being one of the new six-coupled bogie goods engines with tender. The foot-plate being open to the public, some idea may be obtained of the numerous valves, levers, gauges, and brakes to which the engine driver has to give constant attention. At the front of the engine are placed a pair of cylinders as a type of those used in its construction. This Company have also

one of their third-class bogie corridor carriages on view, looking far more imposing here than it does at the Kingsbridge Station.

The Midland and Great Western Railway Company have on show a saloon carriage which is typical of what can be executed in Ireland when occasion requires. The carriage is 56 feet long over body, 9 feet wide, and weighs 30 tons. It stands on a section of the permanent way which is adopted by this Company, the ballast being formed of Galway granite. The saloon contains a drawingroom, diningroom, a smoking compartment, kitchen and lavatory, with hot and cold water available. The drawingroom is very tastefully panelled in satinwood, pencil cedar and teak, and is furnished with armchairs and couches, the carpet being of Donegal manufacture. The diningroom, with a seating capacity for twelve persons, is decorated in a very quiet design of oak panelling. The carriage is lit by electricity, and fitted with a self-contained steam-heating apparatus. It is interesting to note that His Majesty travelled to the West in this saloon, and in design, execution, and decoration it may well be called a Royal carriage.

In contradistinction to this acme of luxurious travelling, one has but to turn round and observe the old open second-class carriage which was built in 1837 for passenger traffic between Dublin and Kingstown, and which is exhibited by the Dublin and South-Eastern Railway Company. This type can still be remembered in use by many of our citizens whose memories are not of the longest, and it is a silent object-lesson of the wonderful progress of railway rolling stock in this country, which at the present time on the trunk lines may not fear comparison with that of other lands. The open carriage, in order to increase its interest, has been placed upon a portion of the permanent way in use in the middle of last century, the rails of which weigh but 40 lbs. per yard, and are placed on granite blocks. This Company have also one of their new family saloon carriages on view, and a most instructive exhibit of the engine and set of driving wheels for a locomotive, which, in motor parlance, may be called the chassis, constructed at the Company's works in Grand Canal Street, Dublin.

The sole exhibit of the Great Northern Railway Company of Ireland is a standard pattern, corridor composite bogie carriage, 53 feet long, with three first-class and four second-class compartments, each class having its own lavatory. This carriage was built and finished for ordinary use at the Company's works, Dundalk.

The English railway companies, which are connected directly with cross-Channel traffic, are represented by many cleverly executed models of their rolling stock and connecting steamers, many of which are old acquaintances, but will still repay further inspection. We would, however, particularly call attention to the interesting exhibits of the London and North Western Railway Company, both for their originality and excellence. At the back of the stall is a model of a long stretch of permanent way with tunnels, sidings, switches, station platforms, and a signal box, upon which are to be shown various shunting and signalling operations, accompanied by a brief explanatory lecture by the Company's representative. A model of the twin-screw steamer, "Anglia," which vessel was built in 1900 by Messrs. Denny Bros., of Dumbarton, for the Holyhead and North Wall express service, is worth close inspection, as it gained the Grand Prix at the recent St. Louis Exposition. Beside it is placed a quarter-scale model of the King's saloon, which, together with the stand in which it is placed, weighs two tons. The model is constructed of steel, mahogany, and rosewood, and cost £1,200 to construct for the St. Louis Exposition, at which it also gained the Grand Prix. By an ingenious arrangement the interior can be electrically lit, and the rich and comfortable fittings observed. Examples of a less luxurious day may be seen at this stall in the early "Experience" railway carriages which ran (or perhaps we should say walked) in 1838 between Manchester and Liverpool. A relic of the then vanishing coaching days can be noted in the guard's seat placed at the front near the roof. A model of Stephenson's "Rocket" locomotive (built in 1829) is also to be seen in motion.

The Great Western Railway Company's exhibits are chiefly to be commended for their educational value, for

which purpose they have obviously been constructed. They consist of a model locomotive engine with glass boiler, showing the arrangements of the tubes, furnace, and working parts; sectional model showing the motion of a locomotive engine, and a model tender.

It is a matter for regret that space will not enable us to mention the many interesting exhibits in the transportation section, other than those briefly noted in this article. The collection of maps and models which has been brought together reflects the greatest credit on the Executive and the various exhibitors of this section. While particularly instructive to the engineer, they will prove scarcely less engrossing to the ordinary public, owing to the patience and skill which have contributed to their production.

Before leaving this portion of the hall an inspection should certainly be made of two exhibits in the south aisle. The first is a very clever model of the Dublin Dockyard, which has been constructed by the staff employed by the Dublin Dockyard Company, Ringsend. From time to time one hears with interest of the launching of a new vessel by this Company, some of which attract but passing attention; others of which, like the Corporation twin-screw sludge steamer, "Shamrock," are brought prominently into public notice. But the model of the dockyard will indicate more clearly the progressive nature of this Company's work, for there may be seen the various slips, one empty, the others occupied by vessels in various stages of construction, the adjoining dry dock, and in the vicinity the engine sheds and workshops, all fitted with machinery. Even the electric arc lamps, the trucks and rails, and piles of materials, are all shown; and while the model clearly demonstrates, as we have said, the nature and dimension of the works, the staff deserves the highest congratulation for such a cleverly detailed exhibit, a refreshing reminder of the skill and painstaking endeavour which Irish craftsmen can display.

The second model to which we refer, although not so detailed, is of interest as showing the improvement of the Custom House Docks, as proposed by Mr. J. P. Griffiths, Engineer to the Port and Docks Board. The scale of the model, 36 feet to the inch, and its scope, enable the far-reaching changes in berthing and warehousing accommodation to be clearly shown, and there is little doubt that the suggested improvements will be extremely valuable to the port. Incidentally, attention should be given to the Custom House, which is very cleverly shown on the model, and enables the observer to form some conception of the general proportions and design of Gandon's masterpiece, and the methods he adopted for lighting by means of the East and West Courtyards. The disfigurement caused by the embracing Loop Line is also observable. On the walls of this stand are many interesting maps and diagrams indicating the progress of the port of Dublin, and those who sigh for, and sometimes vehemently acclaim, "the good old days," should study the words of Sir William Bereton, who wrote, in 1635: "The river is no good channel, but full of shelves and sand, over which few ships can pass that carry 400 tons or thereabouts." Later the River Liffey appears to have become still further silted up, so that even the lightest craft could enter only at full tide. And now, when we may constantly see the L. and N.W. boats, of the "Hibernia" class, nearly 350 feet in length, and of over 1,800 tons, constantly berthed along the quay walls, we may well congratulate the Port and Docks Board that these things be. A diagram showing the various positions of the retaining wall of Sir John Rogerson's Quay, in 1715, 1800, and 1872, is also instructive as showing the gradual narrowing and deepening of the river from time to time.

In leaving the Mechanical Hall, the stand of the Cork Street Foundry and Engineering Works, Cork Street, Dublin, will be passed, and here Mr. William Spence has collected a very interesting number of exhibits, including a steam boiler for a narrow gauge locomotive of the type well known to the visitor to Messrs. Guinness' Brewery. The diameter of this boiler, with its sixty-four $1\frac{1}{2}$ inch tubes, is 2 feet 5 inches, and the total heating surface, including the tubes, is over 86 sq. feet. The steam pressure is 180 lbs. to the sq. inch, and the boiler is fitted with patent safety valves, water gauge cocks, steam whistle, blow-off and check valves. For the same type of locomotive is shown a set of wheels and axles with outside cranks, also a narrow gauge bogie waggon for conveying barrels, sacks of malt, etc. There is also to be observed a pair of locomotive cylinder castings, $18\frac{1}{2}$ inches by 26 inches, cast at the works, and a set of three-throw brass barrel pumps, 8 inches diameter with 21 inch stroke, capable of discharging 15,000 gallons per hour, fitted with gun-metal glands, rods, buckets, and rotating valves. There are many other interesting exhibits at this stand, some of which are manufactured by this firm alone in Ireland, and the display is instructive as showing that engineering requisites, skilfully and carefully manufactured, may be obtained within the city boundary.

In our last issue we dealt in detail with the electric light and power installation; but, as may be conjectured, gas has by no means been ousted as an illuminant; indeed, a large pavilion has been erected for the special purpose of exhibiting to full advantage the many improvements which have of late years been introduced by gas engineers, in their efforts to hold their own with the more modern developments of electricity. When finished, this pavilion, situated just within the Morehampton Road entrance, will be by no means the least attractive feature of the Exhibition; but we will reserve dealing with the interesting display made by many well-known firms until the finishing touches have been given. The plant for the external lighting is, however, installed, and has been working satisfactorily since the opening day, and the brilliantly illuminated main avenue, and the circle round the band stand, add greatly to the nightly appearance of the Exhibition. The gas used is all delivered to the standards at a pressure of from 16 to 30 inches, but the bye-passes are worked off the ordinary low-pressure mains. Although this system entails a double line of service pipes, yet it has been found to be more efficient under the conditions prevalent at Herbert Park.

The gas illumination has been undertaken by three firms, whose plant is to be found together in the north-west corner of the pavilion.

Messrs. William Sugg and Company, of Westminster, have installed duplicate sets of $1\frac{1}{2}$ h.p. direct-acting gas engines and pressure pumps, giving a normal pressure of 16 to 20 inches. These sets run very sweetly, and have been considered to be amongst the best examples shown of machinery in motion. For this reason it is to be regretted that they could not be installed in the Palace of Mechanical Arts. They are capable of raising the pressure of 9,000 cubic feet of gas per hour, giving a total light of 300,000 c.p. They supply the ninety-four 1,500 c.p. Sugg's patent Belgravia high-pressure lamps in the main avenue and round the band-stand, and various clusters elsewhere.

Adjoining these are duplicate sets of Keith and Blackman's system, worked by 4 b.h.p. gas engines of the Crossley type, the pressure being obtained by means of patent fan arrangements. This plant serves chiefly for lighting the centre of the gas pavilion, and the side avenue along the Canadian Pavilion and Industrial Hall, by means of 1,500 c.p. Keith lamps.

The third plant, by Messrs. Anderson and Duffield, is not in full working order, but will eventually serve for the lighting of one-half the Machinery Hall, at present illuminated by self-intensifying lamps under ordinary pressure, of which forty 600 c.p. and twenty-four 300 c.p. have been temporarily installed. This latter type of lamp, which has recently come into such general use in Dublin, has also been adopted for the main entrance hall at Ballsbridge, which is lit by thirty-seven 300 c.p. and seventeen 600 c.p. lamps, together with eighteen 250 c.p. Sidney inverted burner lamps, the whole making a most effective display, and very creditable to the firms engaged. The illumination of the buildings and grounds, with electric and gas-lighting in juxtaposition, is quite an interesting study to the engineer, for in each system the most modern contrivances have been introduced. And while electricity has no rival for the decorative illumination of the dome, and the outlining of the various buildings with incandescent lamps, yet for the general lighting the effect produced by the gas lamps, and their brilliancy and scope, compare very favourably with the colder and more dazzling light from the arc.

(To be continued).

STEAM WAGGON.

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CIVIL ENGINEER (24) desires employment. Three years with L. and N.W.R. Passed A.M.I.C.E. exam. Surveying, levelling; good draughtsman, steelwork, etc. N.T., 167, "Builder" Office.

YOUNG MAN, disengaged; three years foreman for provincial builder; first-class certificates; carpentry, joinery, building construction, builders' quantities; desires engagement as Foreman, Clerk of Works, Builders' or Architects' Assistant.—Reply to D., "Irish Builder."

ENGINEERING NEWS.

Athlone.—The Athlone No. 2 Rural District Council invite tenders for the sinking of a well and erection of a pump at Feamore.

Armagh.—Tenders are at present invited for erecting a masonry bridge over the River Callan, on the main road from Armagh to Moy, in accordance with plan and specification prepared by Mr. R. H. Dorman, county surveyor.

Kingstown.—The Urban Council invite tenders, to June 1st for one four-wheel watering cart with rotary sprayer, to contain not less than 400 gallons; (2) two iron covered hand barrows, sheet-iron portions to be galvanised, tops to be hinged; (3) four stone carts, with solid shafts; (4) one road sweeper. Pattern stone cart and road sweeper can be inspected.

Lurgan.—The Board of Guardians of the above Union received Tenders from sanitary engineers for the carrying out of a sewerage scheme in the workhouse, and preparing the necessary specifications and estimates of the work.

Newcastle (Co. Wicklow).—Tenders have been invited for sewage disposal and additional lavatory accommodation at the Royal National Hospital for Consumption, Newcastle, according to the designs and specifications of Mr. C. H. N. Sutter, M.Inst.C.E.I., 42 Dame-street, Dublin. We understand the following contractors have tendered for the work—Messrs. George Bower, Ballybrack; Kinlen, Greystones; and Pemberton, Ballybrack.

Wicklow.—At a recent meeting of the Wicklow Harbour Board, Mr. R. G. Allanson Winn, the engineer of the Board, in connection with the extension scheme, in sending a receipt for £277 10s., wrote from Dublin:—"In now tendering my resignation I wish to record my regret that there should have been the slightest semblance of friction, which I think you will allow I did my very best to avoid. Though you may, and I trust you will, be able to secure the services of men of greater ability and experience, you will never get anyone more genuinely anxious to do his best to carry out your wishes and improve the harbour. I still hold that the extension of the south breakwater is what you really should have, and I much regret that you are committed to the basin scheme, which, in my humble opinion, is a very poor one. If you had ever given me the slightest hint that you would accept internal improvements, I could have given you a scheme for adding to your wharf accommodation in a far more businesslike manner; but you always most emphatically insisted that you must have the south breakwater extension, and nothing else, so that I never gave any attention to up-river improvements, except the repair of embankments at Shelton Abbey. With regard to my seeking the assistance of Dr. Storey, I do not think you should blame me for endeavouring to safeguard your interests and my own by securing the best possible advice in an exceptionally difficult case. I trust the member of your Board who made references to my 'want of backbone' will now realise that his remarks were untimely and hardly fair, as viewed in the light of recent events. It has been a very great disappointment to me losing the work with you; but I can assure you that I shall always take a keen interest in the place, and hold myself in readiness to loyally assist you to the very best of my ability on any future occasion on which you may honour me with your confidence."

Waterford.—At a meeting of the Waterford Co. Council the business was the appointment of an Assistant County Surveyor for Carrick and Clonmel district, in room of Mr. Rae. The Chairman said before they proceeded to make the appointment he wished to inform the Council that he had been told by Mr. McCoy that it would be illegal to go on with the appointment of an Assistant County Surveyor, as Mr. Rae's services had not yet been dispensed with by the Local Government Board. The secretary read the following letter:—"Local Government Board, Dublin, 18th May, 1907.—Sir—With reference to previous correspondence relative to the proposal of the Waterford County Council to dispense with the services of Mr. J. H. Rae, Assistant Surveyor in the county, I am directed by the Local Government Board for Ireland to forward herewith to be laid before the County Council the enclosed copies of letters which have been received from Mr. Rae, and I am to request that you will be so good as to furnish the Board with the observations of the County Council, together with a report from the Co. Surveyor on the matter. —I am, etc.—H. Courtenay. Chairman—You can fill the appointment temporarily. Mr. Murphy—Yes, I propose that we go on with the election. Chairman—There is a proposition before us. Mr. Murphy has proposed that we fill the appointment temporarily. Mr. Mulcahy—Yes, and I second it. The proposition of Mr. Murphy was amended in favour of making a permanent appointment, and was adopted unanimously, and the election was proceeded with. The secretary read the application for the position from the following gentlemen:—Messrs. J. W. E. Penrose, C.E., Dungarvan; James Flanagan, Dublin; James Lawlor, As-

sistant Co. Surveyor, Clonmel; John A. Ryan, C.E., Waterford; W. F. Rutledge, Dublin. A poll was then taken, the voting being as follows:—For Penrose, 9; for Lawlor, 9; for Ryan, 10. A poll was then taken as between Messrs. Penrose and Lawlor, when there voted—For Penrose, 12; for Lawlor, 13. A final poll was taken between Messrs. Ryan and Lawlor with the following result:—For Ryan, 15; for Lawlor, 12. The Chairman then declared Mr. Ryan duly elected.

THE BEXHILL CASEMENT WINDOW.

The Bexhill casement window, an illustration of which we give herewith, is one of the neatest and most ingenious devices of its kind that have been brought under our notice. As may be gathered from our illustration, the window consists of two upright sashes, each filling one half of the frame from top to bottom. They are hinged together and work on runners, so that the extreme sides may be made to approach one another, leaving an open space on one or both sides. When folded close together at either side of the frame an air space is left practically equal to the entire area of the frame. This, which is the first striking advantage of the Bexhill window, makes it an ideal fitting for Sanatoria, Hydros, Hospitals, and institutions of a similar kind. The locking arrangements are another unique feature. They are so devised that the two sashes may be locked in any position along the whole length of the frame from completely closed to wide open, and under no conditions can they be opened from the outside, while, on the other hand, the opening from within is a matter of the greatest simplicity. The sides of the sashes are wedge-shaped and fit close into the frame, and the top and bottom are so arranged as to be virtually air-tight. No rain, wind, or dust can for this reason enter the room, and rattling is



an impossibility. The method of opening appeals to us as being a decidedly useful and pleasant arrangement. The window can be opened at any angle, and, in addition, used as a wind screen, as shown in the illustration, while for cleaning purposes the outside of the right-hand sash is within easy reach when the window is folded over to the left, and *vice versa*. Risk of accident is thus entirely obviated. Casement windows are at present very popular, and are being fitted in villa residences to an unprecedented extent. They have many advantages, but they require great care and accuracy both in design and hanging in order to render them weatherproof. The Bexhill window, to our mind, possesses every advantage of the ordinary casement window, together with some peculiarity of its own, and it is evident from its construction that it can easily be made not only weatherproof, but airtight, and that it is likely to continue so. Full particulars, with prices, etc., can be had from the Bexhill Casement Window Co., 1 Mitten Road, Bexhill-on-Sea.

CONTRACTS.**TO BUILDERS.**

Tenders are invited for the Building and Completion of a New Church at Granemore, Co. Armagh, in accordance with plans and specifications prepared by me, and which may be seen at the Parochial House, Ballymacnab, or at my office.

Tenders to be delivered to the Very Rev. Patrick Corr, P.P., Ballymacnab, not later than Saturday, 8th June, JOHN F. M'GAHON, Architect.

Roden Place, Dundalk, 24th May, 1907.

RATHDOWN No. 1 RURAL DISTRICT COUNCIL.**KITCHEN RANGES FOR LABOURERS' COTTAGES WANTED.**

The Rathdown No. 1 Rural District Council will, at its meeting to be held on the 5th June, 1907, be prepared to receive and consider tenders for the supply of suitable kitchen ranges for some of the labourers cottages in the district.

Parties tendering must forward to the Workhouse, Loughlinstown, on or before the 4th June, 1907, a sample of the range—for which a tender is submitted—marked with the name of the firm sending it in.

The tenders must state the price per range at which they will be delivered at the various cottages where required.

Tenders, addressed to the Chairman of the Rural District Council, marked on the outside "Tender for Ranges," will be received by me up to ten o'clock a.m. on the 5th of June, 1907.

The Council does not bind itself to accept the lowest or any tender.

By order,
PATRICK CUNNIAN,
Clerk of the Council.

Clerk's Office, Loughlinstown, 17th May, 1907.

TO BUILDERS AND CONTRACTORS.

Tenders are invited from competent persons for Building Gate, Piers, Stabling, etc., at the new College, Mullingar, Co. Westmeath, for the Most Rev. Dr. Gaughran, Lord Bishop of Meath, according to the plans and specifications, which may be seen at The Palace, Mullingar, or at my offices, on or after Wednesday next, June 5th.

Tenders to be delivered to the Most Rev. Dr. Gaughran, Lord Bishop of Meath, on or before Thursday, June 13th. The lowest or any tender not necessarily accepted.

LUCIUS O'CALLAGHAN, M.R.I.A.I.,
Architect.

26th South Frederick Street, Dublin, June 1st, 1907.

TO BUILDING CONTRACTORS.

Estimates are required for Building a new Parish Church at Castletownberehaven, County of Cork and Diocese of Kerry, for the Very Rev. Canon O'Donnell, P.P., V.F., in accordance with the drawings and specifications prepared by the undersigned.

Bills of Quantities and Forms of Tender can be had on application to D. W. Morris, Esq., Surveyor, 68 Harcourt Street, Dublin.

Drawings can be inspected at our offices, or at the Parochial House, Castletownberehaven.

The lowest or any tender not necessarily accepted.

DOOLIN, BUTLER and DONNELLY,
Architects.

Dawson Chambers, Dublin, May 20th, 1907.

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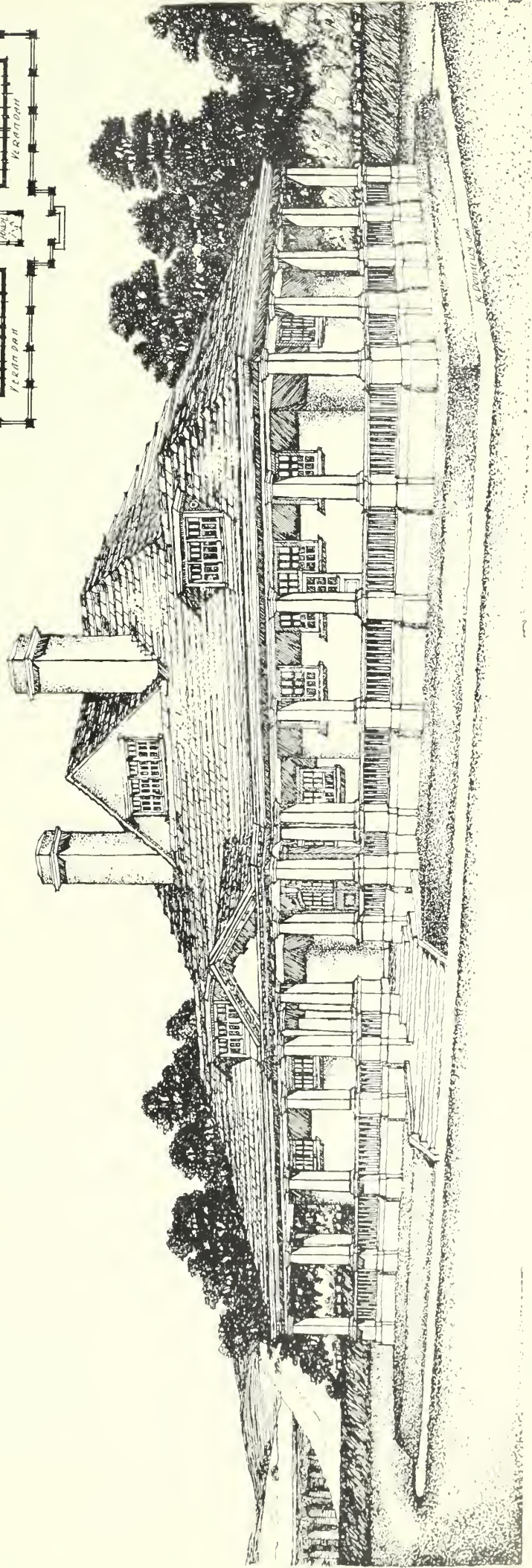
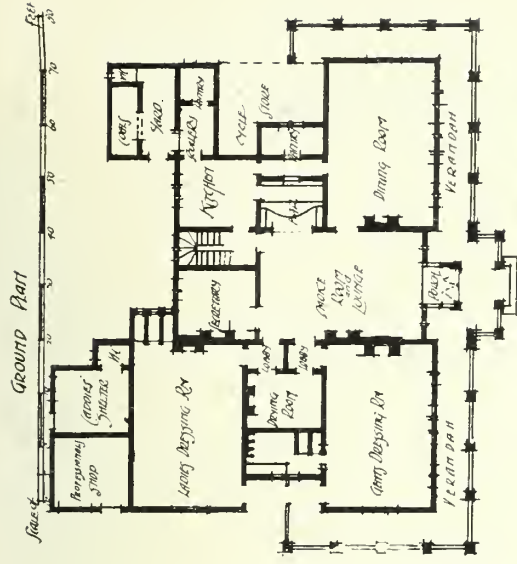
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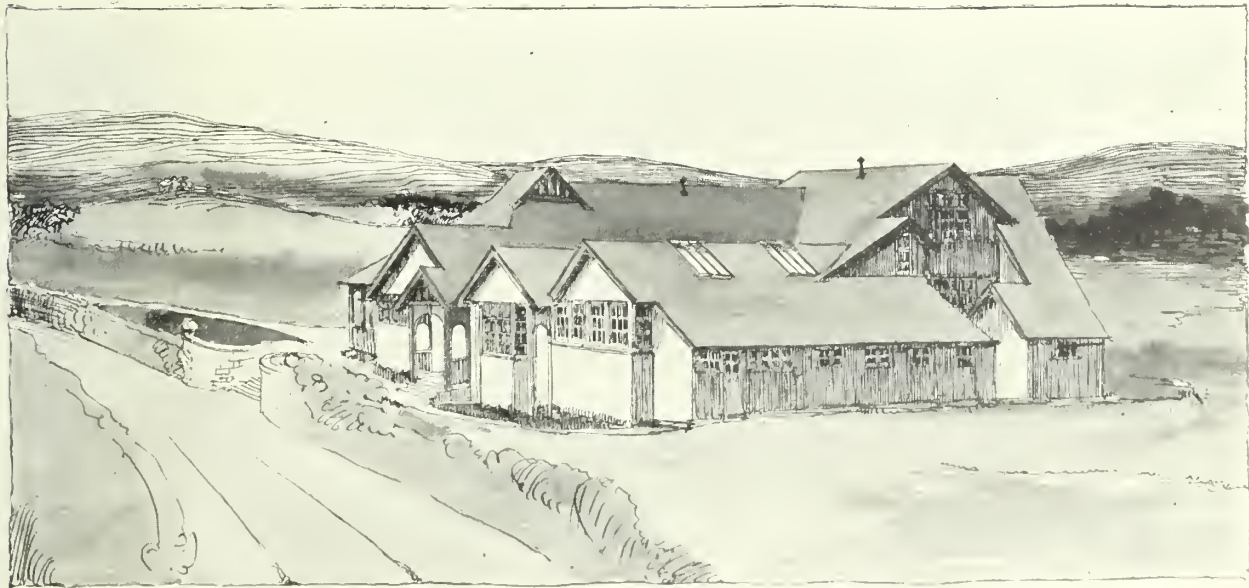
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Design for Proposed Golf House.
VIEW FROM S.W.

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June 29, 1907.

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TOPICAL TOUCHES.

On Tuesday last, the members and delegates to the Annual Congress of the Royal Sanitary Institute opened the proceedings with a luncheon at the International Exhibition.

* * * *

The Society of Arts in London, at the request of the Foreign Office, lately prepared a memorandum on Exhibitions held in Great Britain and Ireland since 1890. This memorandum was prepared for the Board of Trade for the use of the Japanese Government. It is supplementary to, and brings up to date, a similar memorandum prepared in 1889 for the benefit of the Chicago Exhibition Committee, then organising "the World's Fair."

* * * *

Some very interesting particulars of the success or otherwise of International Exhibitions are given. The largest and most successful exhibition was that of 1901 in Glasgow. A profit of over £30,000 was realised, but this record is quite exceptional.

* * * *

One held the following year in Wolverhampton resulted in a deficit of £34,000. The Bradford Exhibition had a surplus of £15,000.

* * * *

The Cork Exhibition, held in 1902, had a surplus of £6,000, but this was due to the liberality of its supporters, who gave donations to the amount of £16,000, without which there would have been a deficit of £10,000.

* * * *

The Exhibition was continued during a second year, and resulted in loss.

* * * *

The Cardiff Exhibition of 1896 had a small deficit. Many smaller exhibitions were held in the larger provincial centres of England, some of the nature of private speculations. In many cases they seem to have been profitable to their promoters and to local industries.

* * * *

No large exhibitions have been held in London during recent years, and the report says the tendency is to drop large exhibitions and have only smaller ones, which are now regarded as more useful for business purposes by manufacturers and traders than large international exhibitions, the day for which has passed, according to the report.

* * * *

The report goes on to say that it must be remembered that great exhibitions like those held in Paris, Chicago, or St. Louis, can only be carried on at a very heavy loss. The receipts from visitors, stall rents, amusements, etc., can never be sufficient to defray the heavy charges for buildings, maintenance, etc. Of course, adds the report, it may be worth a country's while to incur this loss for the sake of the indirect gain, as, for instance, in the case of a young and rising country, or a great universal centre like Paris.

* * * *

The situation is summed up by saying, "that it seems unlikely that in the immediate future any of the older countries will be willing to meet the necessary expenditure"; "in future we shall have a number of smaller exhibitions, of which a considerable proportion will be confined to some special subject, or group of subjects, rather than any of the great International Exhibitions of the past."

In our Engineering columns we give some details of the recent Congress of the Institution of Gas Engineers held in Dublin.

* * * *

The annual excursion of the Architectural Association of Ireland will take place this year on 16th July. The venue is Warwick, a charming old-world town in the centre of Shakespeare's country, and perhaps the finest architectural district in England. The arrangements have been worked out by Mr. E. Bradbury, the charges for the trip being fixed at an incredibly low figure. The programme arranged is a splendid one.

* * * *

The Council of the Royal Institute of the Architects of Ireland has, in a circular published in this issue, recommended its members not to take part in the competition for the proposed Cork Sanatorium, as the conditions are unreasonable. This recommendation is a trifle belated, but still we trust members of the Institute, and, indeed, others outside the Institute, will loyally abide by its requirements. If they do they will administer a much-needed lesson to public bodies and others who devise unfair or unreasonable conditions of competition, conditions under which no other class of professional men would consent to work, on the off chance of one out of dozens, or hundreds, winning the prize.

* * * *

The conditions in the competition for the housing of the poor in Kingstown are also very objectionable.

* * * *

On the contrary, the conditions for the Limerick Technical Institute are eminently fair and practical, and, we understand, are attracting a considerable number of competitors.

* * * *

If architects would only loyally act together in these matters, they would soon bring building authorities to reason, and produce a better state of public opinion, because however ready local authorities may be to perpetrate "jobs," by employing ignorant and unqualified men, when it comes to difficult and intricate points of planning and severe economy, they are forced to fall back on trained architects, if they want value for their money, not to speak of any degree of artistic merit in design. The untrained mind in building invariably produces wasteful, costly, and ugly designs.

* * * *

In this issue, we publish an abstract of a most admirable paper, lately read before the Society of Arts, London, at a meeting over which Mr. T. F. Jackson, R.A., Architect, presided, by Mr. William Dale, F.S.A., on the "Artistic Treatment of a Piano." Such a subject would, at first sight, appear more suited to the pages of a musical journal rather than a building paper, but the subject is dealt with wholly from the artistic standpoint, and of late years many eminent architects have tried their hands at designing a piano less ugly and aggressive than the everyday article we are accustomed to, but not always with success. Two things are necessary—first, ability to design, and next a complete acquaintance with the construction, use, and mechanical difficulties of the design, and without which no one need make the attempt. The Editor of THE BUILDER, Mr. H. H. Statham, himself a good musician, pointed out the absolute necessity of complete regard for the use and purposes of the article and its mechanical requirements.

THE ARTISTIC TREATMENT OF THE EXTERIOR OF THE PIANOFORTE*

BY WILLIAM DALE, F.S.A.

Mr. Dale, in the course of his remarks, observed: It is my intention to deal with the subject very largely from an archaeological standpoint. I am led to this by the very nature of my studies, which have lain amongst those keyboard instruments which preceded the pianoforte, and which in form were largely imitated by the early pianofortes. For this reason I am not at all sure that I am the best person you could have asked to read this paper. I am not in sympathy with a good deal of what is called decorative and artistic treatment to-day. I am also not in agreement with those who consider we cannot learn from or take lessons from the past, and that a machine-made thing may be as artistic as anything which is old, and which is admired only because it is old. May I be allowed to quote the opinion of one who, though perhaps not recognised generally as an authority on art, had a true perception of the beautiful and as sound a judgment on this question as any. I refer to the Rt. Hon. W. E. Gladstone.

Mr. Gladstone on Architecture.

Addressing an audience of working men at the Agricultural Hall, at a distribution of prizes gained at the National Workmen's Exhibition, Mr. Gladstone said in 1893:—

"There are many who believe that in the case of industrial productions it is a loss of time and pains to think about giving to them a character of beauty. It is this falsehood which we ought, if we can, to tear up by the roots. Let me reply to those who tell us so, that, on the contrary, the whole history of Greek art is a demonstration of the truth of that important and essential principle."

Later on in his address, passing to the subject of architecture, Mr. Gladstone continued:—

"There is this great peculiarity in the remains of early Christian architecture. In these remains beauty is not supplementary and occasional, but uniform and invariable. I am not now speaking of the works which were produced in the later Middle Ages, but of those works which present most of all the character of simplicity as their main characteristic. If you travel in Ireland on no account fail to examine the Glendalough churches. I do not suppose there is one of these churches which is 50 feet long. You might build any one of them for £500. But every line of one of these churches is instinct with beauty which the rudest and even untutored can hardly fail to recognise. There is a circumstance in architecture which terrifies me, and that is the tendency which appears to prevail in modern domestic architecture—I refer to its redundant ornamentation. There are a great number of new buildings in London—I hope I am not treading on any one's toes—with regard to which, if you look at them, you will find that the architect had either a horror or a dread of leaving bare a single square foot of wall. Why do we not wage a war against this excess of ornamentation? Excess of ornamentation is, of all things, the most hostile to a due appreciation of proportion, because it is in proportion to the perception of breadth and beauty and line, and in the adjustment of lines to one another, that the art lies, and in that you will find the hope of attaining high excellence in great works. I will mention to you the case of the exterior of Salisbury Cathedral. The man who wants to know what is beauty in stone—beauty not produced by ornamentation—should visit Salisbury, for there he will see less ornamentation on the exterior of the building than in any Cathedral, and, I believe, in a great many domestic houses in London. But if you want to see what can be done by simple beauty of outline, which is the foundation of all beauty, take a look at the exterior of Salisbury Cathedral. It is a model for all ages and all countries."

The Modern Piano.

I have said that the modern piano is not an artistic object. The inexorable law of evolution is responsible for this. The square pianos of the eighteenth century were well proportioned, and admitted of some decorative treatment, which, though simple, was often most happy. But as the construction of the square piano improved, to meet the musical requirements of succeeding generations, its size and unwieldiness increased, until it was finally improved off the face of the earth. The grand pianos of the eighteenth century were built so nearly upon the lines of the old harpsichords that you could not tell the difference until

you opened them. Early in the nineteenth century their form began to deteriorate as their interior construction altered. The frame, or stand, with its familiar stretcher, was abandoned for legs, and the pedals, instead of being attached to the front legs, were disposed of in a lyre-shaped construction depending from the body of the instrument. As iron bars and iron framing came in, and the tension of the strings largely increased, the case of the piano had to be made increasingly strong. Its elegant proportions vanished, and the legs soon became elephantine in size.

The upright pianoforte is only a little more than a hundred years old. The early ones, which were tall, were known as cabinets and upright grands, often with an imposing cornice on the top, quite architectural in its character, and not unlike a Chippendale bookcase—though generally the appearance was spoiled by a wealth of silk curtain fluted and radiated from the centre.

It is necessary to remind those who design such instruments that to produce a case of such a form no one would imagine it contained a pianoforte is not treating that instrument artistically.

I am fully aware of the difficulties which beset the path of the pianoforte-maker who may be artistically inclined. The public will have iron-framed and powerful sounding instruments, and such require cases of a certain amount of massiveness. Herein largely lies the difficulty of treating them artistically.

Some Notable Piano Cases.

Of all the manufacturers of musical instruments none were more noted than the famous family of the Ruckers, of which there were several generations working in Antwerp as harpsichord makers from the middle of the sixteenth century until the closing years of the seventeenth. I dare not linger to describe the sweet silvery tone of these wonderful instruments, several of which I have known and played. In the Ruckers' family art and handicraft were allied. They were members of the Guild of St. Luke, the painters' guild, because their instruments were painted. The case was usually black, and not often decorated, but, on opening the top, all was changed. The interior of the lid was filled with some pleasing subject, painted by a master hand. The sounding-board, with its carved rose and trade-mark, was covered with a design of flowers, and the edges of the case appearing above the sound-board were enamelled a lovely red—the despair of modern imitators. When not painted, the lid was inscribed with mottoes. In a volume of the unpublished papers of Peter Paul Rubens, which appeared in 1859, is a letter dated 1638, which passed between the painter, Sir Balthazar Gerbier (then in Brussels) and Sir F. Windebank, private secretary to Charles I. It related to the purchase of a Ruckers harpsichord for the King of England. The instrument is described as by Hans Ruckers the younger, and painted with the subject of Cupid and Psyche, by Rubens. The price was to be £30, without the painting, £15. It was eventually purchased and sent to England, but did not please the King on account of its short compass. On being appealed to, Hans Ruckers refused to alter the compass. Many such harpsichords must have found their way to England. It was my privilege, in 1879, to see one by Andreas Ruckers completely restored. Some 100 years earlier it had been previously restored, and a fresh case of mahogany put to it, but the painting and decoration of the interior were unaltered. The painting of the inside of the top I was able to identify as the work of Van der Meulen. It was brought under the notice of Sir Edward (then Mr.) Burne-Jones, and it was largely this instrument that inspired his conception of the famous "Orpheus" piano, which, later on, I shall describe.

With the mention of the Ruckers family I may dismiss foreign instruments. The early Italian spinets, it is true, were decorated in various ways, some in embossed leather and some with precious stones, and some with painting. Examples of such can be seen at South Kensington. As, however, these instruments were not placed upon stands, but laid upon the table, they had very little in common with pianofortes, and do not fall within the scope of my paper. The English spinet, first made in England about the middle of the seventeenth century, was derived from the Italian spinet. No decoration was employed upon the case, but the form was so beautiful and well-proportioned that I am bound to refer to it. Pepys, in his Diary, records, in his well-known style, repeated visits to Haward to purchase a spinet, and after it was brought home he next buys a

* A paper read before the Society of Arts, London.

stand for the same. This instrument reached its greatest perfection in the days of Queen Anne. Nothing has ever equalled the form of the spinets made by John and Thomas Hitchcock. The picture which you will presently see is of one which was the favourite instrument of the Princess Amelia, youngest daughter of George III. A kindred instrument to the spinet was the virginal; indeed, spinets were often called such, although it is usual amongst connoisseurs to restrict the term virginal to the oblong or coffer-shaped instrument. One of them, by Liversedge, undoubtedly English and seventeenth century, is the only instance I know of a painted English spinet or virginal. It is the property of Mr. Arthur Hill, F.S.A., and was once Dr. Rimbault's. The painting, somewhat rudely executed, it is said, represents ladies walking in the Mall. The harpsichords made in England, like the spinets, were not ornamented. This is somewhat singular, as both the great makers of the eighteenth century, Kirkman and Shudi, derived their art from the House of Ruckers. Their cabinet-work was, however, excellent, and the marqueterie stringing and veneering in panels was very beautiful. I possess a double harpsichord, made in 1770, when Shudi had just taken Broadwood into partnership, which is so finished, and has in addition long strap hinges of brass, which are a very simple and effective decoration.

Early English Pianos.

The first square pianos made in England between 1760 and 1780 were of simple rectangular form, and placed upon a plain stand. Soon after the latter date they greatly improved in appearance, and for about ten years the homely square piano was worthy to rank as a decorative object. It was placed on what was called a "French frame," that is, a stand with tapering legs of Louise Seize pattern. Satin and tulip wood, and that beautiful wood, now so little known, called hare wood, was used for decoration, and some little brass work, which was technically known as furniture, was sparingly added. The space above the keys was used for a name-board. The name itself was inscribed on an oval of satin wood, written or engrossed with a quill pen. To the inlays one maker, Longman and Brodrick, of Cheapside, the forerunner of the firm of Collard, added a charming wreath of sweet peas on either side, painted with considerable skill. The proportions of the instruments were good, and it is probably from their winsome appearance that these old instruments, when they occasionally turn up, are often called spinets. Equal praise may also be given to the early grands, which, up to the close of the eighteenth century, carried on the form of the harpsichord. In fact, being somewhat smaller than the harpsichord, their lines were better, and this was particularly noticeable in the curve of the bent side.

A Piano by Burne-Jones.

In the year 1880, Sir Edward (then Mr.) Burne-Jones conceived the idea of treating the piano artistically. Here I wish to say that one of his aims was the production of a beautiful curve for the bent side, and it is a recollection which I think I alone retain, that in a quiet room in Golden Square he drew on a large sheet of paper in freehand a curve which he wished to be that of the piano he was designing. On testing this curve subsequently, its proportions were found to be exactly those of the grand pianos made in the last decade of the eighteenth century, by the firm in whose house he was. In searching the old books of Broadwood I have found at this period frequent mention of pianos decorated with medallions, and I have met with one instrument of the kind which has survived. It was dated 1798, and was sold at Christie's only a few years back. The medallions were Wedgwood's, they were sparingly placed round the sides and in the space above the keyboard, and had a charming effect, while the cost of the piano in ordinary cases could not have been greatly enhanced. I say in ordinary cases, because in 1796 Broadwood had the commission to decorate a piano in this style, which was so remarkable that it deserves more than a passing mention. In February of that year the Spanish Ambassador, staying at Grenier's Hotel, in Jermyn Street, gave the order for a grand pianoforte superbly ornamented in satinwood case, with inlaid work, and Wedgwood's and Tassie's medallions, etc. He is called "Le comte de Mopox et de Jarnico," but the entry is headed, "Prince of the Peace," for the piano was for "Don Manuel de Godoy," the handsome guardsman, the favourite of Queen Maria Louisa, whom Charles IV. of Spain raised to the rank of Minister of Foreign Affairs. The year before he had earned the title Prince of the Peace by concluding the treaty of Basle with the French Republic. Two months after his English-made piano reached the shores of Spain, he signed the treaty of San Ildefonso and declared war with England, initiating that series of disasters for his country which culminated at

Trafalgar. The piano was not, however, apparently for himself. Sheraton's own design for the instrument, of which more than one copy exists, states that it was presented by Godoy to the Queen of Spain, to whose favour the rapid rise in his fortunes could alone be attributed. The instrument took four months to make, and left England for Bilbao on the 22nd of June. It is described as "a grand pianoforte, 6 octaves C to C, in satinwood case, ornamented with different woods with water-gilt mouldings, and Wedgwood's and Tassie's medallions. The Prince of the Peace's arms, chased and gilt in burnished gold. 213 guineas—£223 13s. The Prince's portrait in front, by Taylor, £10 10s." It must, of course, be borne in mind that the relative value of money was then very much higher.

(To be continued.)

CORRESPONDENCE.

"Dalkey Granite."

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—May I take the liberty of replying to your comments on Dalkey granite, which appeared in your issue of June 1st? You wish to know is Dalkey granite even equal to Dublin mountain granite. I can speak as an employer of stonecutters, quarrymen, and sett-makers for the past 30 years in Dalkey quarries, and I consider the Dalkey stone ten times superior to Dublin mountain stone, as any building contractor in Dublin can tell you that, quoting for any job, and where Dalkey granite is specified, then there is a pause and a full stop. Then prices have to be asked from the quarries, or any old stonecutter they may have in their employment. The price is from 100 to 150 per cent. over Dublin mountain stone. Any builder of good standing knows this quite well.

Dalkey stone is of a hard, durable, and close-grained granite, of a blue-grey tint, free from flaws, and always holds its colour. The crushing strain of Dalkey granite is stated by Wilkinson to be over ten thousand pounds per square inch, and it weighs about 165 lbs. per ft. cube. Ten thousand pounds per square inch is equal to 642 tons per square foot.

Dublin mountain granite is friable, has large flakes of mica, and is not equal in any way, either in appearance or density, as Dalkey is for architectural engineering, etc.

Our city streets in Dublin were always paved, from 50 to 100 years ago, with Dalkey setts, crossings, and kerbing.

To give you an example of the two granites, we have the beautiful Cathedral at Queenstown. The first contract was given out some 40 years ago to the late Messrs. Michael Meade and Son, builders, of Dublin, and they (Messrs. Meade) got a lot of rock-faced ashlar, prepared in Dalkey, and also a large amount in Dublin mountain stone, and all went away together. But upon its arrival at Queenstown, the sharp eye of the then clerk of works (Mr. C. G. Doran) quickly discovered the large flakes of mica glistening in the Dublin mountain granite, and had it at once isolated away from the Dalkey granite. The contractor then wanted to know would he condemn it and not let it be used in the works. The clerk of works said he would allow it to be used in the hearting of the spandrels or dwarf walls supporting the floor of the church inside, but not in the exterior to be mixed with the Dalkey granite; so you see there must be a great difference. To compare Dublin stone to Dalkey stone, the comparison is odious. Ballyknocken stone is of a much finer-grained granite than either of the two mentioned, and well suited for moulded work.

Apologising for taking up so much of your space. I remain, yours, etc.,

GEO. DIXON.

85 Upper George's Street, Kingstown,
25th June, 1907.

Milltown Golf Club Competition.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—Would you kindly allow us to reply to Mr. O'Connor's letter, which appeared in your last issue?

We would be glad to know whether Mr. O'Connor examined the designs submitted, and reported thereon to the committee.

If he did not do so, we have been misinformed, and it would be only fair and right that the paragraph he refers to should be withdrawn.—Yours, etc.,

GEO. F. BECKETT.

DONNELLY AND MOORE,

97 Stephen's Green, S., Dublin,
15th June, 1907.

A PAINT AND PETROLEUM EXHIBIT AT THE IRISH INTERNATIONAL EXHIBITION.

Visitors to the Irish International Exhibition, who may be interested in paints and decorators' specialities, lubricating oils, motor spirit, etc., should not omit a call to the stand of Messrs. William Preston and Co., Ltd. (Dublin), which is situated in the western end of the Palace of Mechanical Arts. Messrs. Preston represent in Ireland the following firms:—The Refiners' "Carburine" motor spirit; Lewis Berger and Sons, Ltd., paints, colours, varnishes; Hamilton, Ltd., paint brushes; Benjamin and Gee, oil and turpentine brokers, proprietors of "Bengee" turpentine, "Morganol" motor and lubricating oils; and samples of these firms' specialities form an attractive and interesting exhibit.

Reference has been made on more than one occasion in these columns to Messrs. Berger's well-known paints and varnishes, and it is only necessary to direct attention to the variety of specimen painted panels exhibited at the stand as evidence of the fine quality of this firm's products.

It is interesting to note that prepared paints, as distinguished from hand-mixed lead and oil, are becoming more and more popular each day, and progressive painters are becoming educated as to the advantages to be derived from their use. We have tested varieties of Messrs. Berger's pure liquid paints, and have been well satisfied with the results.

A large show-case contains some specimens of brushes adapted to the various uses of painters and decorators, manufactured by the well-known firm of Hamilton, London, and whether it be for painting, stippling, or lining, the tools on exhibit are certainly fine specimens of workmanship.

Another feature of Messrs. Preston's exhibit is the display jars, showing the products of petroleum adapted to various uses. The oils for lubricating different kinds of machinery are shown, and a striking display is made of oils for motor cars. In a challenge issued some time ago, and published in the *Motor News*, Messrs. Preston stated that their spot and forward sales of these oils exceeded the joint output of any two other firms in Ireland, and if one were to judge by the tall pyramid of neatly-enamelled tins bearing the names of most of the well-known motor car manufacturers and motor dealers in Ireland, Messrs. Preston seem to occupy the foremost position in this respect.

Another speciality is gas-engine oil, which is meeting with considerable favour amongst gas engine users in Ireland. Mr. Cotton, engineer to the Alliance and Dublin Consumers' Co., who has a wide experience of this form of motive power, has recently written Messrs. Preston a testimonial regarding the merits of this oil, which he has found extremely satisfactory.

"Carburine" motor spirit, prepared by the Gas Lighting and Improvement Co., of London, is well to the front, and the prominence given to this speciality at the stand certainly seems to be warranted by the fact that in the recent Irish Reliability Trials 57 per cent of the competing cars used "Carburine" motor spirit. Here, also, it is interesting to note that the same number of motor cars were lubricated with "Morganol" motor oils.

"Cæmentum," in connection with which considerable interest has been evoked, is also a speciality of which Messrs. Preston are the wholesale agents in Ireland.

It appears that "Cæmentum" will stick everything. Its best, as well as its most popular use, of course, is for mending of household articles which it is desirable to save from the dust-bin. Dishes, jugs, and kettles all seem to regain their utility when mended with "Cæmentum."

Messrs. Preston are to be congratulated on the enterprise they have shown in introducing into every corner of Ireland the various specialities for which they are agents, and on the up-to-date manner in which they handle their business.

To meet rapidly increasing demands for the specialities mentioned above, they have found it necessary to more than double the size of their stores in Great Brunswick Street, which contain large stocks of colours, liquid paints, oxide paints, varnishes, oils, etc.

ARCHITECTS WANTED

to note that THE DUBLIN DRAWING & PHOTO-PRINTING OFFICE is always at their service for making TRACINGS or WORKING UP DRAWINGS from sketches. All Drawing Materials supplied. Photo-prints a speciality. Tel. 2278. Address 17 Westland Row, Dublin.

A COMPREHENSIVE EXHIBIT.

Amongst the exhibits at the recent Building Trades' Exhibition, held in London, there was none which attracted more attention than that of Messrs. Cakebread, Robey and Co., Builders' Merchants, Manufacturers, and Wholesale Ironmongers, of Stoke Newington, Dalston, Tottenham, Wood Green, and Hford. They exhibited a selection of high-class ranges, with open and close fire and with lifting fire arrangements, and tiled coverings; also a kitchener, with an ingenious arrangement for converting from a coal fire to a gas fire whenever desired. The additional cost of this range is very slight, and it ought to have a great sale, as in the summer months it means that the coal fire can be entirely dispensed with, thus effecting a considerable saving of expense, while there is no extra cost incurred, or room wasted, in having a separate gas cooking stove. They also showed their "Homeside" Portable Range (also convertible into a gas cooker), and another portable range, the "Belle," which is very well known. We noticed, also, in this department some high-class tile stoves, showing barless and semi-barless arrangements, and the "Pinnox" hearth fires with tiled surrounds. The fire in this grate is above the floor level, so that there is no need for excavation, and the risk of fire is reduced to a minimum. There were also high-class interiors, slabbed panels, wood chimney-pieces, and a selection of tiled mantel registers. Another feature of Messrs. Cakebread, Robey and Co.'s exhibit were some tiled registers with high-pressure boilers. These stoves are becoming increasingly popular, as they can be fitted in the sitting-room, and the boiler being connected with the bath and sink, hot water is always obtainable without the necessity of keeping up the kitchen fire. Other departments of the stand exhibited sanitary goods, including baths, and a fine show of builders' ironmongery of every description, as well as paints, oils, colours, varnishes, and paper-hangings. A novel feature of the stand was a cast-iron verandah, with glass roof, suitable for villa residences, whether built in terrace or detached. This verandah, painted white, is very effective, and gives a highly ornate finish to a house entrance. In the Surveyors' Section of the Exhibition, Messrs. Cakebread, Robey and Co. had a stand where they exhibited their numerous patent drain joints, and drain machine appliances, including the famous "Ferret" lockfast joint, as well as several of their ingenious patent locking joints. The "Standard" Patent Smoke Test Machine, drain plugs, drain rockets, etc., were also exhibited. It will be seen from this that Messrs. Cakebread, Robey and Co. manufacture an immense range of goods required by builders, plumbers, and house-furnishers, and our readers will do well in obtaining their catalogues, and keeping their name before them.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A special Council meeting of the Royal Institute of the Architects of Ireland was held on Friday, the 21st inst., at 20 Lincoln Place, Dublin, to consider the conditions of competition for the proposed Consumption Sanatorium for the County Cork Joint Hospital Board.

Mr. C. H. Ashworth occupied the chair, and there were also present—Messrs. R. C. Orpen, J. Holloway, H. Allberry, F. G. Hicks, and James H. Webb, Hon. Sec.

The Hon. Sec. reported that he had sent the "Conditions of Competition," as approved by the Institute, to the Secretary of the Joint Board, together with a letter pointing out that the conditions of the competition advertised by the Joint Board were not in accordance with the regulations therein, which fact would preclude architects of standing from competing. In reply, a letter had been received from the Secretary of the Joint Board, reiterating the main provisions of the competition, with the additional information that the work would be executed under the supervision of the Joint Board's engineer, and that the engineering and medical experts of the L.G.B. would be asked to act as assessors.

The Hon. Sec. was instructed to write to the Secretary of the Joint Board regretting that the Board had not seen its way to amend the conditions, and informing him that the Council thought it its duty to point out to the members of the Institute the undesirability of entering the competition.

Messrs. James Lowden and Co., of Belfast, are carrying out the electrical installation for light and power in the large block of buildings which is nearing completion in Arthur Square.

LAW CASES.

The Belfast City Hall.—Architect's Claim for Fees.

The case, brought in the King's Bench Division of the High Court of Justice in Ireland, in which Sir Alfred Brumwell Thomas, architect, was plaintiff, and the Corporation of Belfast defendants, and which was settled, as the last issue of the IRISH BUILDER AND ENGINEER was going to press, by the plaintiff's acceptance of the defendant's terms, contains some facts which may be of interest to our readers. The statement of claim consisted of fifteen paragraphs, a summary, and four schedules.

Paragraph 1 states that in June, 1896, the defendants invited designs for a new City Hall, upon conditions of which one was as follows:—"In the event of the author of the design placed first in order of merit being employed to execute the buildings as architect, he shall receive as remuneration a sum of 5 per cent. on the amount of the tender accepted for the erection of the buildings. It is to be clearly understood and agreed that this sum will be the entire remuneration, and is to include all professional charges and expenses in connection with the design, superintendence and completion of the new buildings, excepting only quarterly surveyor's fees and clerk of work's salary, which will be paid by the Corporation.

Paragraph 2 recites that the plaintiff's designs were placed first, and the plaintiff, in March, 1897, employed as architect; that the plaintiff prepared working drawings and specifications, and that the defendants accepted a tender thereon for £149,864 5s. 10d.

Paragraph 3 alleges that these working drawings and specifications were subsequently abandoned, and the plaintiff required to prepare different working drawings, etc., on a larger and more ornamental basis; that the plaintiff did so, and that the defendants accepted tenders in accordance therewith, and made payments to contractor amounting to £233,413 10s. 3d., as set out in Schedule A to the statement of claim.

Paragraph 4 claims fees at the rate of 5 per cent on the above sum, amounting to £11,170 10s.

Paragraph 5 is an alternative claim to the sum of £11,170 10s., for work and labour done, etc.

Paragraph 6 claims the sum of £3,746 10s. for work and labour done, etc., at the rate of 2½ per cent. on the first accepted tender of £149,864 5s. 10d.

Paragraph 7 claims the sum of £363 10s., being 3 per cent. on the sum of £12,119 8s. 5d. expended in furniture for the new buildings, said furniture having been designed and its execution superintended by the plaintiff.

Paragraph 8 claims the sum of £607 4s., being 3 per cent. on the sum of £20,240, estimated cost of various works and services designed and specified by the plaintiff, but which works, etc., were not approved of by the defendants for execution. List of said works, etc., given in Schedule B.

Paragraph 9 claims the sum of £803 10s., for work and labour done, etc., by plaintiff at request of defendants in respect of special services outside the plaintiff's scope as architect. List of said services (attendance at L.G.B. inquiry, designing cartoons for stained glass windows, etc.) given in Schedule C.

Paragraph 10 claims the sum of £1,317 5s., in respect of travelling expenses.

Paragraph 11 claims the sum of £3,750, in respect of extra costs of expenses incurred by plaintiff owing to the erection of the buildings extending over ten years instead of four years, as provided by alleged contract with plaintiff.

Paragraphs 12 and 13 are alternative claims to the sum of £3,750 claimed by paragraph 11.

Paragraph 14 reserves right to the plaintiff to claim fees in respect of executed work not yet valued and paid for.

Paragraph 15 acknowledges receipt of the sum of £8,050 on account of fees.

SUMMARY OF PLAINTIFF'S CLAIM.

Pars. 4 and 5.—5% on £223,413 10s. 3d.	... £11,170 10 0
" 6 2½% on £149,864 5s. 10d.	... 3,746 10 0
" 7 3% on £12,119 8s. 5d.	... 363 10 0
" 8 3% on £20,240	... 607 4 0
" 9 Special services	... 803 16 0
" 10 Travelling expenses	... 1,317 5 0
" 11 Delay	... 3,750 0 0
Total	... £21,758 15 0
Credits	... 8,050 0 0
Balance	... £13,708 15 0

The Defence lodged by the Corporation of Belfast contains 26 paragraphs, which need not be recited in detail. It traverses the statement of claim in customary legal method and phraseology. In substance it deals with the

amounts claimed by plaintiff, as above summarised, as follows:—

The sums claimed under paragraphs 4, 5, and 7 are admitted; those claimed under paragraphs 6, 10, and 11 wholly rejected; and, in respect of the remaining paragraphs, sums as under are offered—viz., paragraph 8, £517 6s.; paragraph 9, £550.

SUMMARY OF AMOUNT ADMITTED BY DEFENCE.

Pars. 4 and 5	... £11,170 10 0
" 7	... 363 10 0
" 8	... 517 6 0
" 9	... 550 0 0
Total	... £12,601 6 0
Credits	... 8,050 0 0
Amount lodged in Court	... £4,551 6 0

On the case being called for trial, counsel for plaintiff accepted the above sum lodged in court.

The counsel for plaintiff were Messrs. J. H. Campbell, K.C., and G. A. McGusty, K.C. (instructed by Messrs. Hayes and Son); counsel for defendants, Messrs. C. L. Matheson, K.C., A. K. Overend, K.C., and R. F. Harrison, K.C. (instructed by Sir Samuel Black, Town Clerk. But much of the credit for the successful defence put in by the Corporation must be given to Alderman John M'Cormick, Belfast, who was mainly in charge of the matter on behalf of the Corporation. Of course, the Corporation are still liable to the architect to the extent of 5 per cent. on such sum or sums as he may certify to be still due on foot of the building or other contracts. The architect has not yet issued his final certificate, and should he refuse to do so, or should there be any dispute with the building contractors in regard to the amount due, litigation or protracted arbitration proceedings may still result. But it is to be hoped that there will be no further differences, and that the matter will be closed amicably. Comment on the case as between architect and Corporation is unnecessary. Such comment as might be made will suggest itself to those interested.

THE MORTAR OF ANCIENT BUILDERS.

It has been for many years a hidden secret from builders how masons hundreds and thousands of years ago managed to make mortar which practically defied the ravages of time. In the ruins of our old castles, churches, etc., one will frequently see an overhanging arch, the other side of which has been battered down, perhaps, by cannon balls years ago. This fragment seems to defy the laws of gravitation owing to the excellent binding of the mortar. It is now stated that the Hungarian chemist, Brunn, has discovered the secret of this, having compounded a liquid chemical which renders certain kinds of matter proof against the effects of time. Prof. Brunn asserts that it doubles the density of nearly every kind of stone and renders it waterproof. It imparts to all metals qualities which defy oxygen and rust.

The Grammar School, Watford, is being ventilated by means of Shorland's patent exhaust roof ventilators and special inlet ventilators, the same being supplied by Messrs. E. H. Shorland and Brother, of Manchester.

* * * *

At the last meeting of the South Dublin District Council, a discussion took place arising out of a proposal on the agenda to authorise the expenditure of £925 as engineers' fees for the Terenure sewerage scheme, of which amount a sum of 500 guineas was to be paid to Mr. P. H. M'Carthy, engineer.

Mr. Lawlor considered the fees mentioned were very high. He thought the work should be in charge of one man, and that the fees should be fixed at 2½ per cent. on the outlay.

Mr. Gallagher seconded. The ratepayers were making complaints that the Council was misusing their money.

The Chairman moved an amendment that Mr. M'Carthy be retained at his offer of 500 guineas for his portion of the work.

Mr. M'Guinness seconded the amendment.

The amendment was declared lost, and Mr. Lawlor's resolution was adopted.

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CONTENTS.

	PAGE.
Topical Touches	441
The Artistic Treatment of the Exterior of the Piano-forte	442
Correspondence	445
A Paint and Petroleum Exhibit at the Irish International Exhibition	446
Law	449
LEADER :—	
Brickwork, Plaster and Paint	450
COMMENTS :—	
Town Tenants in Ireland	453
The Exhibition.—The Prize Cottage	453
The Schoolmaster Abroad!	453
The New Workmen's Compensation Act	454
Garden Architecture	454
Building News	457
Some New Painting Materials	458
Our Southern Letter	458
Engineering Items	461
Imports	462
The Institution of Gas Engineers	462
Engineering News	466

BRICKWORK, PLASTER, AND PAINT.

In his valedictory address to the members of the Architectural Association of Ireland, the outgoing president, Mr. Holloway, referred in terms of strongest condemnation to what he termed the "epidemic of paint" in Dublin. Said he—"Brickwork, stonework, everything vanishes before its art-killing sway." Now, we are entirely with Mr. Holloway in any denunciation of sham wheresoever it is found, and with the general terms of his address we are in complete sympathy, but his denunciation of paint opens up a new question. Is what he denounces as a sham really so, and even if it is, does it mark a revulsion from red brick and a reversion to stucco? In a leading article in its current issue, our contemporary, the "Builders' Journal," asks pretty much the same question in slightly different terms, having seemingly noticed pretty much the same phenomenon in England.

The free and periodic use of paint has always been (we for our part think it is regrettable) almost unknown in Ireland. New wood and iron work is painted, and in the cities the larger shops are kept painted, but for any of that neat attention and periodic touching-up or re-doing so usual in England, we look in vain in Dublin. Quite pretentious private town houses occupied by people of good social standing are suffered to go, year after year, without paint, and to become dingy and shabby-looking, while the wood-work, of course, rapidly deteriorates for want of its protective coat of paint. The same applies in lesser degree to the minor shops. We confess we have observed few of those evidences of misapplied painting energy upon which Mr. Holloway was so severe; it may be that we are not observant. We should hate to see really good cut stone work daubed over with coats of paint, simply to "improve" its colour, destroying texture and sincerity, as much as successive coats of whitewash obliterate delicate and beautiful plaster-work; but it must be remem-

bered that in the Middle Ages gold and colour were freely applied to the internal stone-work of churches; often the reredos, the rood screen, or the arcade was freely, and, we think, perfectly legitimately, treated with gold and colour, and the effect enhanced, but it was done with skill, judgment, and restraint; the work was never plastered over, but the effects were brought out without destroying the nature of the stone. Take a Bath or other soft stone reredos—it is impossible not to admit that gold or colour judiciously applied does not add greatly to the value of the whole; that brings to this admission, then, that it is legitimate to colour stone-work; the judicious use of colour deceives no one, and never prevents the true nature of the material being made apparent. As a matter of fact, the old colouring was more of the nature of bold picking out in gold and colour. Sometimes we get on an old late Gothic tomb a coat of arms blazoned in gold and colour, and what a fine effect it has! But we fancy that this is not the kind of paint Mr. Holloway rails at. What apparently has so much annoyed him is the system of glossy, treacley paint applied heavily and covering all, including generally the dirt that has lodged upon the stonework. This system of painting, appropriate enough for woodwork, should never be applied to stone; it is distinctly a barbarism, and quite different to the mediæval practice before alluded to.

The other aspect of Mr. Holloway's observation which struck us as similar to the remarks of the "Builders' Journal" is when he spoke of the painting of brickwork and plasterwork. Our contemporary has noticed this tendency to revert to stucco in lieu of brickwork. Does it not betoken a thorough sickening of the eternal red brick so familiar to all dwellers in modern cities or suburbs. Mr. Holloway objects to people painting brickwork. Now, our contemporary tells us that the modern use of brickwork was essentially a revival. In the end of the eighteenth, and first half of the nineteenth century, stucco (in which term we include all similar plastering methods, such as the old familiar Roman cement) held sway, but gradually deteriorated so much in design as to produce a great revulsion of feeling against its use, a feeling greatly fostered by Ruskin and the other critics of his day. But when the English people revived the every-day use of red facing brick, and adopted it for building all those hideous modern villas, and stereotyped streets and roads so painfully familiar, they adopted something as different from the old English or Dutch brickwork, of which we still have some traces in Dublin, as chalk is from cheese. The enormous size of the bricks, the hardness of texture, and the harsh, glaring colour, when combined and repeated *ad nauseam* become too horrible for words, and apparently the better the quality of the brick, the worse the appearance. The great, large, machine-made Ruabon bricks exemplify this at its worst. Several streets in and around Dublin and the adjoining townships have been wholly rebuilt in recent years, and faced with glaring red Ruabon brick, which it would be hard to beat for aggressiveness. Personally, we should infinitely prefer to have stucco fronts, which might either be left plain or painted from time to time, and a little brightness and colour introduced into our cold, grey climate, but in some less aggressive form than the red brick we see so much of. Again, we get localities like the South Circular Road district in Dublin, popularly known as the "Red Settlements," anything worse it would be impossible to imagine. Anyone who has ever been in the eastern counties of England, or in Holland, sees at once that this modern brickwork is quite a different thing from the rich colour effects of the old work, so that there is really no comparison between the two varieties.

The "Builders' Journal" reminds us that Robert Adam and his sons freely used a kind of stucco to face their

classical houses with, and very effective it was; in fact, we doubt if Mr. Norman Shaw's depressingly ponderous arcaded structures will be half so effective as the old Regent Street curve. The United Service Club in London, too, the "Builders' Journal" tells us, has lately been refaced with stucco, which is most effective; the Athenæum Club, also faced with stucco, our contemporary describes as "the masterpiece" of Decimus Burton. The Garrick Club also is alluded to, and, indeed, many other London buildings broadly and suitably treated in stucco have a very fine, dignified appearance. The West End of London is not very prolific of really good private buildings, those of the past quarter of a century are unrestful and "worried" looking, in their multiplicity of over-laboured detail; yet who will not admit that the residential parts of the West End of London, with its houses with freshly-painted stucco fronts and plain solid surfaces, relieved only, perhaps, by a decent halldoor and frontispice, the well-kept windows with the gay flower-boxes and hanging creepers, does not present a very pretty appearance on a fine spring morning in the height of the season? Is not the fancy for paint referred to by Mr. Holloway possibly due somewhat to a return of taste to the plainer effects associated with stucco? In Ireland matter has a special interest for us. In exposed situations ordinary brickwork, unless in walls abnormally thick, will not stand the moist climate nor ensure a dry house. In fact, on the west, north-west, and south-west coast nothing save cement dashing or cement stucco will keep out the wet. There is no reason, æsthetically, why it should be readily used boldly, and plastically treated, in a manner suited to the material, and not lined out to imitate stone. It makes a dry house, comfortable and durable, and may be freely painted.

COMMENTS.

Town Tenants in Ireland.

The passing of the Town Tenants Act of 1906 has so largely changed the relations of landlord and tenant in the cities and towns of Ireland that it must inevitably have a marked effect upon building matters, but, of course, it is too soon as yet to see the true nature and extent of the change. Opinion has been much divided as to whether the change effected is likely to promote or to retard building enterprise. Personally, we hold that it must promote building. The profitable character of the operations of the speculative builder in such large cities as Dublin or Belfast may, doubtless, be to some extent interfered with, but, on the other hand, the speculative builder, in Ireland at least, usually builds for the purpose of selling at a profit, and with a view to the creation of ground rents rather than letting, and this is practicable because of the possibility of obtaining sufficiently long leases to warrant building; but in the smaller towns the circumstances are quite different. There, for some inexplicable reason, it has in the past been the almost invariable experience that it is well nigh impossible to get a proper building lease, or, indeed, any lease, for a longer period than forty years, and most of the occupiers hold under that tenure, or else are tenants from year to year. Neither of these classes of tenants were likely to be very liberal patrons of the building trade, because any improvements they effected became the landlord's property at the end of the leasehold term, or else were confiscated on failure to pay any arrears of the rent that might have accrued. We have not the slightest doubt but that, granted different circumstances and a couple of prosperous years, a considerable building activity would occur.

The actual position of landlord and tenant under the new Act is, therefore, a matter of great importance, and we cordially welcome a most excellent little hand book on the Town Tenants (Ireland) Act, written by Messrs. William B. Black and Daniel O'Leary, Barristers-at-Law, and published by Messrs. Sealy, Bryers and Walker, Dublin.

As the authors put it in their preface, the object of the

Bill was to extend to Irish urban districts, towns, and villages those principles of compensation for improvements by the tenant, and for disturbance by the landlord, which the Landlord and Tenant (Ireland) Act, 1870, applied to the purely rural districts. This is a pretty wide reading, and when we think of the mass of litigation which the Bill of 1870, and succeeding Bills, produced, the importance of the issue to both landlords and tenants in towns is at once apparent.

Messrs. Black and O'Leary's little work is admirably clear, comprehensive, and brief. The entire matter is, so to speak, put in a nutshell. A useful table of decided cases is given, but, of course, the Act is too new for many leading decisions to be available.

The Exhibition—The Prize Cottage.

The exhibits of prize labourers' cottages have now for some time past been opened to public inspection, and have attracted a good deal of attention. One of these cottages is built after the design awarded first place in the recent competition instituted by the Local Government Board. The material of which it is built is hollow concrete blocks, manufactured with one of the Concrete Machinery Company's machines, which may be seen at work at the back of the cottage. This system of casting concrete blocks has gained wonderfully in popularity in America, while in England it is daily growing in favour, especially in districts where stone is scarce or costly, as these blocks, when cast and hardened, presents the appearance of natural stone in a quite remarkable degree, while for such matters as sills, landings, and so forth, the system has many advantages.

One of the chief items of cost in a small cottage is the plastering, external and internal. By the use of this concrete block system, plaster on the outside may be entirely dispensed with, and similarly on the inside by neatly pointing the blocks, thus at once effecting a substantial saving.

The design for this cottage was illustrated by us at the time of the competition, and the actual structure itself should be visited by everyone attending the Exhibition, particularly those engaged in the design or building of labourers' cottages, because the actual construction can be better seen thus than realized from any written description.

The makers of the machine are the Concrete Machinery Co., Ltd., 18 Water Street, Liverpool.

The cottage has been built at the instance of the Local Government Board for Ireland, who promoted the competition in which it took the first prize of fifty guineas.

The Schoolmaster Abroad!

A correspondent in the West sends us an amusing cutting from a local paper—at least it would be amusing did it not indicate a serious state of affairs arguing incapacity and want of grasp of the seriousness of public affairs and the expenditure of public money on the part of so many of our local authorities. The report in question records the proceedings which took place at the recent meeting of the Dromore West District Council, and reads as follows:—

THE ENGINEER.

Arising out of the reading of the minutes, Mr. Gilhool said he would like to know who supplied the information to the L.G. Board that Mr. Healy, schoolmaster, could devote four hours daily, and one day in the week, and two months in the year, to the duties of engineer under the Labourers' Cottages scheme, in reply to the letter of the L.G. Board, stating that they were informed that Mr. Healy was a school teacher, and inquiring if he could devote sufficient time to the duties of engineer under the Act?

Clerk—I don't know. Mr. Devany (E.) proposed, and Mr. Laing seconded, a resolution informing the L.G. Board that the Council were satisfied that he could devote ample time to the scheme, but Mr. Healy was not here. The resolution was passed at a meeting held a week after the quarterly meeting, whereas I am only supposed to hold fortnightly meetings.

After some discussion, Mr. Gilhool proposed that the resolution be expunged from the minutes.

Mr. Kilcullen proposed, and Mr. J. Flynn seconded, that the minutes be signed.

On a division the latter proposition was carried.

We are accustomed to the vagaries of local authorities, and the funny appointments they sometimes make, but the worst feature of this case is the attitude of the Local Government Board. Apparently the only condition they lay down is that the candidate should have "sufficient time" to devote to the duties of engineer under the Act!

This attitude reduces the decision of both Houses of Parliament in regard to the employment of qualified men to an utter farce. The spectacle of the local pedagogue acting as the engineer and district surveyor is too absurd. However, the system of holding examinations by the Local Government Board inspectors and the granting of virtual diplomas is worse, and it is useless to look for any serious administration of the Act in this respect.

The insertion of the qualification clause was a wise act on the part of the Government, unanimously approved of not alone by both Houses of Parliament, but by every educated professional or business man in the country capable of forming an intelligent opinion. The rate-payers are the chief sufferers by its abrogation.

The New Workmen's Compensation Act.

The following letter from the Local Government Board, although addressed to local authorities only, yet contains much information of importance to all employers of labour. Not only are builders and other large employers of labour brought in as subject to the Act, but its provisions apply to all classes of workers, even domestic servants. Thus a builder is liable in respect of his office staff, as is also an architect, engineer, or surveyor in respect of his pupils and assistants. An architect, engineer, or surveyor to a local authority also comes in under the Act, provided his remuneration does not exceed £250 a year, clerks of works, resident engineers, or foremen in charge; so that thus while an architect's or engineer's own liabilities in respect of his staff are increased, he himself is protected under the Act, but this advantage does not apparently extend to a builder, who, as a contractor, has naturally no benefit under this Act.

The provisions of this Act are such as to make it incumbent on every employer of common-sense to fully insure himself against what may be very heavy liabilities:

Local Government Board,
Dublin, 10th June, 1907.

Sir,—The Local Government Board for Ireland desire to direct your attention to the provisions of the Workmen's Compensation Act, 1906 (6 Edw. VII., Chap. 58), the general purport of which is to give to a workman, if personally injured by the accident arising out of and in the course of his employment, certain claims to compensation from his employer, except where (a) the injury does not disable the workman for a period of at least one week from earning full wages at the work at which he was employed, or (b) where the injury is attributable to the serious and wilful misconduct of the workman himself, unless the injury results in death or serious and permanent disablement.

The definition of "employer" is extended by section 13 of the Act to any body of persons corporate or unincorporate, and the same section provides that the exercise and performance of the powers and duties of a local or other public authority shall, for the purposes of the Act, be treated as the trade or business of the authority. The word "workman" includes all persons, whether men, women, or minors, who have entered into or work under a contract of service or apprenticeship with an employer, whether by way of manual labour, clerical work, or otherwise, and whether the contract is express or implied, is oral or in writing, and also, where a workman who has been injured is dead, includes his executors, administrators, and dependants as defined by the Act.

The following classes, however, are not included within the definition of "workman," and are not entitled to compensation under the Act:

- (1) Persons whose "remuneration" exceeds that of £250 a year, and who are employed otherwise than by way of manual labour.
- (2) Persons whose employment is of a casual nature and who are employed for purposes other than those of the employer's trade or business.
- (3) Members of a police force.
- (4) Outworkers as defined by the Act.

(5) Members of the employer's family as defined by the Act, dwelling in his house.

It is to be observed that the sum of £250 referred to in the preceding paragraph is not limited to wages or other money payment, but comprises the consideration which a person under contract receives for his services, such as board and lodging, fees, and other similar emoluments.

The amount of compensation for which an employer is liable under the new Act may briefly be stated as follows:

(1) Where death results to the workman from the injury—

(a) If he leaves any dependants wholly dependent upon his earnings, a sum equal to preceding three years' earnings with the same employer, but not less than £150 or more than £300; or, if not with the same employer for the three years, then 156 times his average weekly earnings with the employer who is liable, but not less than £150 or more than £300.

(b) If he only leaves dependants in part dependent upon his earnings, a sum either agreed on, or, in default of agreement, determined by arbitration, not exceeding the amount payable under (a).

(c) If he leaves no dependants, reasonable medical and burial expenses, not exceeding £10.

(2) Where total incapacity for work results from the injury—

(a) A weekly payment during the incapacity, not exceeding half his average weekly earnings during the previous twelve months and not exceeding £1 a week.

(b) In the case of workmen under 21 years of age and earning less than 20s. a week the payment is to be the full average weekly earnings, but not exceeding 10s. a week. Subsequently, however, after the workman has reached the age of 21, the payment is liable to be reviewed and increased to half of the amount he would probably have been earning, if he had remained uninjured, but not in any case exceeding £1 a week.

(3) Where partial incapacity for work results from the injury—

Payments as under (2) (a) during the incapacity, but in no case exceeding the difference between the amount of the average weekly earnings of the workman before the accident and the average weekly amount he is earning or is able to earn in some suitable employment or business after the accident. If the incapacity lasts less than a week, no compensation is payable; if less than two weeks none is payable for the first week; if two weeks or more, compensation is payable from the date of the accident.

The Act will come into operation on the 1st proximo, and having regard to the serious responsibility which it imposes on local authorities in their capacity as employers, the Local Government Board would suggest to them to take into consideration the question of protecting themselves by insurance against the liabilities created by the Act and the Employers Liability Act, 1880.

I am, sir, your obedient servant,

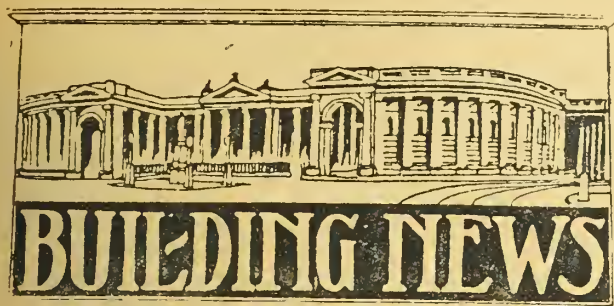
A. R. BARLAS, Secretary.

Garden Architecture.

Mr. B. T. Batsford has published the third edition of a delightful book entitled, "The Art and Craft of Garden Making," by Mr. Thomas H. Mawson, Hon. A.R.I.B.A., garden architect. The re-issue of such a work is most opportune, and proves the popularity the previous editions have attained. It is becoming in England, every day, more and more recognised that gardens should be designed and laid out with the same care and skill that a house is. Mr. Mawson and a few other specialists are constantly engaged in designing such works which ought to accord with and form a suitable setting for the house, and with due regard to its style, pretension, size, aspect, and use.

In England, also, the necessity for the architect of a house in the country understanding something, at least, of the art of garden craft is now universally recognised, and few architects of any pretension to skill in their art are now without this knowledge, and this is as it should be, because the smallest garden may be made beautiful, and an appropriate setting to even a cottage—in fact some of the most charming gardens are small cottage plots.

Mr. Mawson rightly draws the distinction of calling himself a "garden architect," for that is really what he is, and his book is really one on the design of gardens, for it would be a shame if men like him were to be confounded with the so-called landscape gardeners of the past, whose pronounced "Early Victorian" bad taste is only equalled by their ignorance of even the elements of garden craft.



Belfast.—The Belfast Board of Guardians, at their meeting on Tuesday, 25th inst., decided to accept the tender of Mr. William Dowling, Cromwell Road, for the building of the new Children's Infirmary, at a cost of £8,475. The architects for the work are Messrs. Young and Mackenzie, Scottish Provident Buildings. Quantities supplied by Messrs. McCarthy and Brooks.

Tenders are at present being asked for the building of additions to Gas Works buildings, Ormeau Road, for the Belfast Corporation, in accordance with the drawings and specification prepared by Mr. Sharpe, Gas Works engineer. Quantities supplied by Messrs. W. H. Stephens and Son, Donegall Square, North.

The tender of Mr. William Dowling has been accepted for the building of new cotton mill, Springfield Road, at a cost of about £8,000. Mr. S. Stevenson, Royal Avenue, is the architect.

Belfast Corporation.—A Local Government Board inquiry was held last week by Mr. Price into several loans required for building and engineering works. The total loans required is about £75,000. Of this sum, £10,000 is for cottages for attendants at Purdysburn Fever Hospital; £3,000 for bridge across the River Lagan, and £2,000 for underground lavatory accommodation. The lavatory is at present being constructed opposite the new City Hall, in Chichester Street.

We learn on good authority that the Roman Catholic body are at present negotiating for the purchase of a site near the new Technical School for the building of a new Catholic Cathedral for Belfast.

Proposed Children's Infirmary.—The Local Government Board wrote, in reply to the application of the Guardians for sanction to a loan of £11,000 for the purpose of erecting a children's infirmary at the workhouse, and informed them that direction had been given for the issue of an order under seal authorising the expenditure, and sanctioning the loan in question, the amount of the first instalment of the loan to be £2,000, and repayment to be spread over a period of forty years.

Ballinasloe.—A meeting was convened in the Temperance Hall, Ballinasloe, for the purpose of consulting on the advisability of either taking over or leasing the Temperance Hall Buildings, Society Street, with a view to the erection of Technical and National Schools in the town. Rev. Father Joyce presided. Father Joyce submitted the plans he had got from an architect. There would be four rooms in the National School part, each to accommodate 47 pupils, and the concert hall would be capable of seating 600 people. The Temperance Hall, too, would be commodious enough. There was also ample accommodation for a school playground outside. He now left it for the meeting to decide.

Cork.—The County of Cork Joint Hospital Board, will, at their meeting to be held on Saturday, July 6th, 1907, consider tenders for the construction of a new road and sundry other works on the proposed site for a Consumptive Sanatorium at Ballyhoura, Doneraile. Plans, specifications, and conditions may be seen at the Secretary's Office, Court-house, Cork, or at the office of the Engineer, Mr. R. Evans, 53 South Mall, Cork. The Royal Institute of Architects of Ireland has banned the architectural competition as unfair.

Castleblayney.—New Dispensary Buildings for Crossmaglen.—A committee of the Castleblayney Board of Guardians have decided that a dispensary house and dispensary are very much required at Crossmaglen. The committee in their report state that they would be able to secure a suitable site close to the latter town, and containing 1½ acres (Irish), at a cost of £115. From inquiries made in other places, the committee consider that the buildings would cost about £700, to which would have to be added £50 for engineering and legal expenses; also £15 for other expenses. The total amount of the estimate would be £880, which could be obtained from the Board of Works, repayable in 33 years at 4 per cent. The amount of the instalment would be about £47 yearly. A special meeting has been summoned to consider the report.

Cootehill (Co. Cavan).—Cootehill Board of Guardians had under consideration, at last meeting, the erection of the Tullyvin dispensary residence. The following tenders were received for the preparation of plans for the proposed building:—Mr. Peter Cahill, Dundalk, at 5 per cent. on the structural cost, or if the Guardians would adopt the plan approve for Rockcorry residence, he would supply plans for £5 5s., and perform the remainder of the work at 2½ per cent. on the structural cost; Mr. James Keelaghan, Castleblayney, at 5 per cent. on the outlay; Mr. Thomas O'Brien, Stradone, Co. Cavan, at 3 per cent. on the total cost; and Mr. Geoghegan at 5 per cent. on expenditure. Mr. T. O'Brien was appointed.

Clogheen.—The Clogheen Rural District Council have made an improvement scheme in pursuance of the Labourers (Ireland) Acts, 1883 to 1906, and the estimated cost of the scheme is £18,560.

Clontarf.—New Methodist Church.—This building, which occupies a conspicuous position at the angle formed by the junction of St. Lawrence Road and Strand Road, is, so far as the church proper is concerned, practically finished, and was dedicated last week. It contains sitting accommodation for 500 worshippers, and consists of nave, chancel, transepts, and organ chamber, all conveniently arranged for congregational purposes. The longer axis of the church runs parallel with the St. Lawrence Road, from which two large porches lead. There is also a third porch on the Strand Road, so that ample means of ingress and egress are provided. The general architectural style adopted is Gothic of an early period, and the details throughout are designed in harmony with it. The walls are built of and faced with granite; and the external dressings, window mullions and tracery are constructed of grey stone, the colour of which contrasts well with that of the walls. Buttresses are used where needed in the gables, and to take the thrust of the heavy roof. Internally, the transepts and chancel open into the nave through lofty moulded lancet arches, the former being double, and divided by Portland stone columns. The roof is constructed of pitch pine, the lower half being open to the church, forming a semi-octagon, ceiled with boarding. The lower part of the walls are wainscotted with pitch pine, and the benches are of the same material, the pulpit and Communion railing being constructed of solid walnut. The windows are filled with softly-tinted glass throughout. The school building is designed in the same style as the church, and will accommodate 400 children. In connection with it is a church parlour, with kitchen, etc., attached. This block will be put in hand immediately. The new buildings have been erected by Messrs. Collen Bros., of Portadown and Dublin. The architects are Messrs. W. M. Mitchell and Sons, Stephen's Green.

Dublin.—For the erection of dwelling-houses at New Bride Street, for Daniel Tallon, Esq., according to plans and specification prepared by R. J. Stirling, B.E.F.R.I.A., 24 Clare Street, the tender of Mr. Patrick Shortall, 42 York Street, for £5,000 has been accepted.

His tenders have also been accepted for rebuilding extensive premises at Smithfield, remodelling premises at Ormond Quay, and additions and structural alterations at De Vesci Terrace, Kingstown.

Dunmurry.—Tenders are at present being asked for the building of new Presbyterian Church at Dunmurry, Co. Antrim. The architects are Messrs. Blackwood and Jury, Donegall Place, Belfast.

Doagh.—We understand plans have been prepared for the building of new Presbyterian Church, and although the work has been tendered for, the committee have not decided on a contractor. The architect is Mr. W. D. R. Taggart, Scottish Provident Buildings.

Glenswilly (Co. Donegal).—Tenders have been received for improvements to Glenswilly Chapel, County Donegal, according to plans and specification prepared by Mr. J. P. McGrath, architect, Commercial Buildings, Foyle Street, Londonderry.

Keady (Co. Armagh).—A special meeting of Keady Urban Council was held for the purpose of considering the Town Surveyor's report regarding the water supply of the town. The report stated that new pipes would have to be laid from Clea Lake to Keady, and the waterworks thoroughly repaired at a cost of £370. It was proposed by the chairman (Mr. M. Smyth, J.P.), and passed, that the report be adopted. Mr. Henderson, surveyor, was appointed engineer to the water scheme.

Kiltyclogher.—Ancient Order of Hibernians, Division 309, Kiltyclogher.—At the monthly meeting of above Division, the most important matter under consideration was the proposal for the erection of a Hibernian Hall. A site has been obtained.

Londonderry.—Tenders have been received for building and completing nine shops and dwelling-houses in Waterloo

Street, Derry, in accordance with plans and specification by Messrs. R. E. Buchanan and Co., architects, Castle Street, Londonderry.

Tenders were received for building a new hotel in Foyle Street, Londonderry, according to plans and specification prepared by Mr. Patrick H. Elliott, architect, Castle Street, Derry.

Mullinahorn.—Tenders have been received for building premises at Mullinahorn for Swilly Valley Co-operative Flax Society.

Monaghan.—At a meeting of the Joint Committee of the Cavan and Monaghan Asylum, tenders for the re-building of the piggeries were opened. Mr. Francis Duffy, Monaghan, tendered at £628 7s., and Mr. Patrick McGorman, Clones, at £487 10s. Mr. P. Mullan thought that owing to the large sum involved and the smallness of the meeting, they should adjourn the matter. After some discussion, the consideration of the subject was adjourned until next meeting.

The premises occupied by Mr. Johnston, draper, The Diamond, Monaghan, and which were burned down a few months ago, are at present being re-built by Messrs. William Callaghan and Sons, contractors, Lurgan. Brick will be used throughout, and the building will again be four-storey. Mr. J. C. Thompson, Granard, is the architect.

Newbridge.—Newbridge Sewerage Works.—The Council of the Naas No. 1 Rural District will, on 3rd of July, consider tenders for carrying out the above works, which comprise the construction of pipe sewers, manholes, flush tanks, storm overflows, lampholes, fences, filters, septic tanks, and concrete effluent carriers, the supplying and fixing of a hydraulic lift, and the preparation (including under drainage) of about five statute acres of land for irrigation ground, in strict accordance with plans and specification prepared by the Council's engineer, Mr. F. Bergin, B.E.

Omagh.—The Omagh Rural District Council received applications for the position of architect under Labourers Acts. Mr. James Louis Donnelly, of the firm of Messrs. Doolin, Butler and Donnelly, Dawson Chambers, Dublin, has been re-appointed. Two hundred and seventy-five cottages are included in the next scheme.



SOME NEW PAINTING MATERIALS.

We have been favoured with particulars of some painting materials of French manufacture, the properties of which seem to us to render them worthy of a trial. They are as follows:—Fixopone (ground). This is a non-poisonous, white mineral colour, replacing white lead and zinc white for indoor and outdoor work, whether for wood, plaster, iron, glass, or other material. It is claimed for it that it has thirty per cent. greater covering power than white lead; that it remains snow-white in and out of doors, and resists the attacks of alkali, steam and sea-water. It is also said to endure the climatic conditions of any country, and does not blister.

Fassadon, No. 1 (ground), cream-coloured. This is a paint for indoor and outdoor use, covering double the surface of white lead, than which it is guaranteed to be more durable. It is non-poisonous and non-corrosive. Fassadon No. 2 (ground), a combination of Fixopone and Fassadon, intended to be used where a little whiter surface is required than by using Fassadon No. 1, which is more of a creamy colour. Fassadon Iron No. 3 (ground), a preparation especially suited and adapted for application to iron. It is claimed for this that it prevents rust absolutely, being used on battleships, railway work, etc. It is supplied in pale, medium, and dark greys. Balio, an ingredient which, added in the proportion of one per cent., makes limewash as washable as oil paint. It is claimed for Balio that buildings washed with this preparation have a whiter and smoother surface than with simple limewater. In tropical countries, also, where heavy rains speedily wash off the ordinary whitewash, the addition of one per cent. of Balio renders the work permanent. Acid-free Linseed Oil, clear from any

free acids, is particularly recommended for grinding and mixing white paints. We have heard a very good account of the above materials, full particulars and prices of which can be obtained from Les Produits Chimiques de Croissy, 41 Eastecheap, London, E.C.



Messrs. J. B. Joyce and Co., of Whitechurch, Salop, have been favoured with instructions to make a large clock with three dials for the New Victoria Market Hall, Oldham, Lanc. The same firm are making a large quarter clock and bells for Adelaide Memorial Church, Myshall, and recently erected one for Lord De Clifford, Dalgan Park, Shrule.

OUR SOUTHERN LETTER.

Waterworks, Etc.

The Mallow Rural District Council have decided to accept the tender of Mr. J. Fitzpatrick, contractor, Kilkenny, for the construction of the Buttevant Waterworks for the sum of £5,587.

Their engineer recommended the acceptance of the tender sent in by Mr. William Baird, contractor, Dublin, which was for the sum of £5,551. The Council, however, decided to give the contract to Mr. Fitzpatrick, as he was a local man. They refused to entertain two tenders which were sent in after the time mentioned in the advertisement. These tenders were lower than any of the others received.

A special committee of the Cork Rural District have been appointed to deal with the question of the Lough district drainage scheme, as Messrs. W. H. Hill and Son have prepared plans, specification, etc., for the drainage of this district into the Corporation sewer in Sheares Street at an estimated cost of £5,000, and also an alternative scheme for drainage into the north channel of the river, which would be more expensive. All the schemes put forward up to the present have been opposed by the Corporation, and until the Rural District Council and the Corporation come to some agreement in the matter there seems to be no hope of any scheme being executed. Under present conditions it seems that the Corporation are the only body who have power to construct sewers discharging crude effluent into the river. The real solution to the question would be a main drainage scheme for the city, part of the cost being borne by the Rural Council. The Corporation probably consider this too big a responsibility to entertain.

Instead of considering the whole scheme, the two Councils might entertain the question of a main sewer to drain the Lough district, and the portion of the city adjoining that district, with an outfall as near the junction of the two channels of the river as possible. The lower portion of the south channel below the Municipal Buildings may be considered as non-residential, and if the rural district provided tanks, the effluent from that portion of the sewer could be discharged on the outgoing tide on the latter half of the ebb.

The County of Cork Joint Hospital Board, who have now selected a site for the Sanatorium for Consumptives, are advertising for competitive plans, specification, and detailed estimate for the construction of the Sanatorium and accessory works.

They offer a prize of £100, and wish the competitors to state if they have had any previous experience in the designing and construction of a sanatorium.

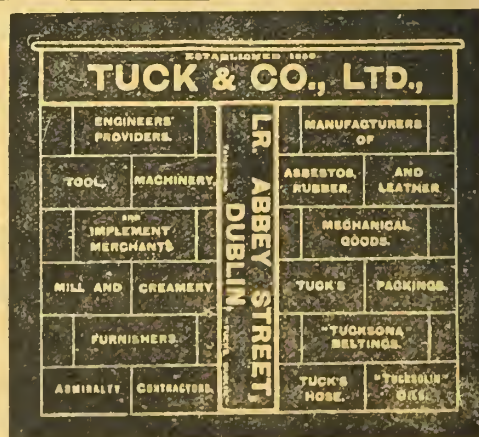
The scheme is to include accommodation for seventy patients, with necessary number of officials, and the buildings are to be designed so as to be capable of future extension.

The plans are also to include water supply, heating, lighting, steam cooking, and sewage disposal, and the whole scheme must be approved of by the Local Government Board to qualify the competitor for the prize. No mention is made as to whether the successful competitor will be employed to superintend the carrying out the works or not.

The Cork Lunatic Asylum Board have approved of the plans and specifications prepared by Mr. W. H. Hill, architect to the Board, for the suggested alterations to the Auxiliary Asylum at Youghal at an estimated cost of £1,500.

The Local Government Board have sanctioned a loan of £5,500 for the extension of the electrical lighting plant in Limerick.

Mr. W. H. Mills, M.I.C.E., the arbitrator appointed by the Board of Works, has lodged his draft award fixing the amount the Waterford Corporation will have to pay for the purchase of the Waterford Toll Bridge at £63,000. The proprietors consider that £75,000 is the minimum sum they could accept, and they intend to appeal against this decision.



ENGINEERING SECTION.

ITEMS.

By using twenty carbons with an alternating current, an American has recently discovered a means of producing electric light of 150,000 candle-power.

* * * *

It is only a few months since the British standard specification for Portland cement (Report No. 12) was issued, and although it has worked exceedingly well and proved extremely useful, yet from time to time practical suggestions have been brought to the notice of the committee, with the result that a revised specification has just been published by Messrs. Crosby, Lockwood and Son, from whom it may be obtained at a cost of 2s. 6d., or, post free, 2s. 8d. The more important revisions are:—

1. The percentage of sulphuric anhydride has been slightly raised.
2. The quantity of cement to be used in the test for fineness, and the period for which it is to be sifted, have been specified, while the residue to be left on a sieve 180 x 180 has been somewhat reduced.
3. The grading for the increase of tensile strength in the neat test has been further extended.
4. The maximum final setting time for "slow setting" cement has been increased.
5. The expansion under Le Chatelier test has been reduced.

* * * *

Other alterations have been made in the direction of rendering the meaning of the specification more clear, such as, for instance, the insertion of an example showing the method of calculating in chemical equivalents the proportion of lime to silica and alumina. The design of the standard needle (Plate 2) has been slightly modified, with a view to diminishing the risk of injury, and to allow of the ready replacement of the point if damaged; but no alteration in the essential features has been made. It will be seen that the revisions all tend to define more clearly the tests for and qualities of a standard cement, and will thus go far to meet the views of those critics who found the original specification somewhat loosely drawn in some essential details.

* * * *

Even the present revision is not final, for we are informed that the Sectional Committee have had under consideration for some time past the question of making some stipulation as to initial setting time, and experiments have been and are being carried out with a view to the inclusion of a clause dealing with this point. The committee are also making other investigations, the desirability of which has been brought to their notice, but they wisely decided not to hold back the issue of the present revision pending the completion of these experiments, which are likely to occupy a considerable time.

* * * *

The members of the Royal Commission on Coast Erosion occasionally have their gloomy mission of inspection of damage caused by the sea relieved by examples of the excellent results obtained by practical and individual effort to stay the incursions. In the course of their visit to Norfolk, Suffolk, and Essex, the members were shown how Mr. Rider Haggard had formed the beach, in front of his property at Kessingland, by binding the sand with marium grass; this method has proved similarly successful at Dunwich. Concrete steel now enters very frequently into coast defence schemes, and its durability, elasticity, and the readiness with which it may be constructed all tend to render it very suitable as an economical and effective means of resisting the ravages of the ocean. A method adopted to the east of Brighton is one in which the groynes of the Owens-Case type are formed of grooved concrete steel piles and slabs (Hennebique system), the piles being driven at suitable distances in the shore, and the slabs slipped between them. The long, low timber groynes, which were formerly considered the most suitable method of coast defence, still retain their almost unassailable position, in spite of the many modern inventions for resisting the incursions of the sea. Their chief fault is their lack of durability, a disadvantage which is obviated in concrete steel groynes. Concrete steel has also proved highly successful in sea walls and protective slopes between Seton Carew and West Hartlepool, the reinforcement being formed with expanded metal.

It is interesting to note that, in the United Kingdom, Dublin possesses tram tracks of the widest gauge—viz., 5 ft. 3 in., which occurs both on the lines owned by the Dublin United Tramways Co., Ltd., and by the Great Northern Railway Co., Ltd., from Sutton to Howth. The rails of the Dublin Tramways are also amongst the heaviest in the Kingdom, being 105 lbs. per yard; those at Sheffield are 110, but the majority of the 170 tramway routes have rails below 100 lbs. per yard. The next gauge to that of Dublin is the new Belfast trams, where the width is 4 ft. 9 in., the weight of the rails being also 105 lbs. per yard. Ireland further rejoices in the possession of an electric tramway with the narrowest gauge, that at Cork, with a width of 2 feet 11½ inches, and rails weighing 82 lbs. per yard.

* * * *

Although, so far, the summer has been perilously akin to winter, and the usual concomitants of Midsummer Day are sadly lacking, yet there is a sign of the times in the various conferences which are at present being held in the United Kingdom and elsewhere. It is noticeable that these are grouped together in a period when, under normal circumstances, fine, warm weather may be expected, and we extend our sympathies to those who this year, after having wearied themselves, and perhaps others, with their eloquence during the day, have found themselves unable to properly enjoy the entertainments prepared for them in the evenings in the various centres where these conferences are held. Paris but lately received a visit from the Association of Water Engineers, last week saw an important conference in London on the control and maintenance of roads under the auspices of the Roads Improvements Association, and at the time of writing the triennial engineering conference is being held at the Institution of Civil Engineers, London, under the presidency of Sir Alexander Kennedy. The Electrical Engineers meet on June 25th at Sheffield, and a casual perusal of the list of subjects to be discussed indicates modesty on the part of the executive as compared with previous years. The Institute of Public Health will shortly meet in the Isle of Man, having last year enjoyed the beauties of the South of Ireland; and the first week of July will find the Royal Institute of British Architects paying a visit to Edinburgh, although, having regard to the present attractions of the Irish metropolis, it is somewhat a matter of surprise that this body did not honour the Irish metropolis with a visit this year.

* * * *

But we have recently had as our guests the Institution of Gas Engineers, the members of which, in large numbers and from all parts of the Kingdom, assembled in Dublin, and, *inter alia*, spent considerable time at the International Exhibition, where they were entertained at lunch, and where, naturally, the Gas Pavilion and the outdoor lighting, described in detail in a recent issue of the IRISH BUILDER, attracted much attention. Then, from June 25th to 29th, the Royal Sanitary Institute is holding its annual conference in Dublin, the period fixed being somewhat earlier than usual. The representatives first met at luncheon at the International Exhibition, and in the evening a reception was held at Trinity College, at which Sir Charles Cameron, C.B., delivered an inaugural address, under the chairmanship of the Provost. Three sectional conferences were arranged for subsequent days—(1) Sanitary Science and Preventive Medicine; (2) Engineering and Architecture; (3) Physics, Chemistry, Biology, and Meteorology.

* * * *

So the months of June and July have been, and will be, productive of much talk, which, were it all to the point, might result in the near approach of a veritable Utopia. But, unfortunately, at the majority of these conferences the major portion of the time is devoted to paper reading, with the result that discussion is almost eliminated, and it is this policy which causes the meetings to be generally unproductive of permanent effect. The conferences are now becoming so numerous and frequent, that those who read papers have but little time in which to prepare the subjects or to make original research, and it is only by discussion that practical results may be obtained. However, the

unofficial side of the conferences, when delegates meet and "talk shop," are helpful, and it is here that real and lasting benefits are discernible.

* * * *

Dr. Thresh, in a recent contribution to the "Proceedings" of the Association of Water Engineers, gave some interesting details of tests with salts and dyes for the purpose of tracing the direction followed by underground streams, by which sources of pollution may be followed and their effect on neighbouring springs and wells ascertained. Common salt, lithium sulphate, or the dye termed fluorescin, are usually employed, while Doctor Thresh has found under certain conditions that ammonium salts may be suitably adopted. The method of tracing pollution is uniform in application: the chemical, whatever it may be, is dissolved in water and introduced at the point of suspicion, a sufficient time is allowed to elapse, and the spring or well water forming the subject of inquiry is then examined and analysed to ascertain if the chemical has percolated through the subsoil and is present. The possible sources of pollution are chemicals, until a definite result is attained. Common salt is, naturally, the more frequently availed of, as it is cheap, innocuous, and its presence can readily be detected in water and the amount determined. Lithium sulphate is costly, and is rarely employed, but by means of the spectroscope the most minute quantities can be detected. Ammonium chloride is economical in use, quite harmless and colourless, and, like sodium chloride, is readily detected and estimated. Fluorescin is also a very valuable aid, for, unlike aniline dyes, it is not liable to discolorisation by passage through chalk, sand, and earth, and, the conditions being favourable, it can be readily detected, even when the dilution is one part in 200 million parts of water. The question of water pollution arises so frequently in an engineer's practice, that it is one to which close attention should be given, and cheap and effective methods of ascertaining the source of contamination are particularly useful to remember.

IMPORTS.

Port of Dublin.

June 12—Per City of Oporto, from Antwerp, 71 cases window glass, Plate Glass; Sill Marole Co.; 211 do. do., T. Dockrell, Son and Co., Ltd.; 35 do. do., A. Bassi; 6 do. do., Boileau and Boyd; 3 do. do., J. G. Nicholl, Ltd.; 80 do. do., T. and C. Martin, Ltd.; 243 do. do., Brooks, Thomas and Co., Ltd.; 10 do. do., J. C. Meyers; 10 do. do., F. W. Small and Co.; 12 do. do., L. Lepersonna and Co.; 1 do. do., H. Sibthorpe and Son; 150 do. do., to order. 636 steel joists, 4 cases marble, 100 bags cement, to order. Per Result, from Connah's Quay, 152 tons bricks, A. Agnew; 21 tons bricks, H. and J. Martin.

June 13th—Per Winga, from Goteborg, 16 cases turned wood, 8 cases glass, 15,850 pcs. planed boards, 111 doz. deals and battens, 1,500 bdls. laths, 4 bags turned wood, to order.

June 17th—Per Grisella Goedel, from Kustendge, 21,182 pcs. deals, T. Dixon and Sons.

June 18—Per Lord Lansdowne, from Baltimore, 102 pcs. and quantity oak; 189 tons slates, 229 pcs. poplar lumber, to order. Per Inishowen Head, from Montreal and Quebec, 109 logs birch, 53 logs elm, 13,540 pcs. firwood sawn, to order.

June 19th—Per Marian, from Bridgwater, 40 tons bricks, Brooks, Thomas and Co.; 55 do. do., J. Kelly and Son. Per Lady Martin, from London, 1,800 sacks cement, T. Dockrell, Son and Co., Ltd. Per Lady Roberts, from London, 1,730 sacks cement, T. Dockrell, Son and Co., Ltd.

June 22nd—Per Sunbeam, from Rochester, 240 tons cement, A. Agnew. Per Lady Hudson-Kinahan, from London, 716 sacks cement, A. Agnew. Per Wilfred, from Archangel, 20,773 pcs. deals, T. and C. Martin, Ltd.; 13,111 pcs. deals, R. Martin and Co.

ANSWERS.

The L.C.B. and Architects.

"A Correspondent":—Many thanks for your letter and cutting, which is instructive. The local National School teacher, as architect, engineer, and surveyor to the District Council is distinctly amusing. Verily the schoolmaster is abroad with a vengeance. If the L.C.B. are satisfied that he can spare enough time from his duties as schoolmaster, to act as architect and engineer, it would be interesting then to know whether the Commissioners of National Education are satisfied he can spare enough time from his duties as architect to enable him to act as schoolmaster!

THE INSTITUTION OF GAS ENGINEERS.

The Institution of Gas Engineers wisely decided that this year's annual meeting should be held in Dublin, which, owing to the International Exhibition, had special claims for recognition. Consequently during the past week delegates from all parts of the United Kingdom, and from France and America, assembled in the Irish metropolis to discuss matters connected with their interests, and to partake of the hospitality offered them in various social functions, which greatly contributed to the success of the gathering. The business meetings were held at the Royal Dublin Society's premises, Kildare Street, and it was in the large hall of that Society that, on Tuesday, June 18th, the Lord Mayor, on behalf of the Dublin citizens, extended to the President, Mr. Chas. Hunt, M.I.C.E., and 300 delegates a hearty *cord mile failte*. He hoped and trusted that their visit to Dublin would be productive of much good to the organisation which they represented, and would also be of advantage to the public as a whole. Their deliberations were of a far-reaching character, and would be of interest, not only to Ireland, but to the three countries; and incidentally he hoped they would result in the cheapening of gas in Dublin. It would be impossible to have a better system or better lighting powers, but nevertheless, the citizens felt the pinch when they came to pay their bills. The President thanked the Lord Mayor for his kindly welcome, and said that the meeting had been looked forward to with pleasurable anticipations, which were in course of realisation. Having regard to the citizens' preparation for the meeting and for the delegates' comfort he was sure the proceedings would be not only instructive, but highly enjoyable. This was their second visit to Dublin, for in 1871 the British Association of Gas Managers held a meeting in the Dublin Society's Hall.

The annual report was taken as read, and, on the motion of the President, seconded by Mr. Belton, was unanimously adopted; and subsequently the London medal was presented to Mr. Korting, and other medals to Mr. Carpenter and Mr. Thomas Glover.

The President's Address.

The President, in the course of an interesting address, said the anxiety as to the position and prospects of the gas industry, which was so widely felt for a considerable time after the introduction of electric lighting, had gradually given way to a feeling of confidence, which was, perhaps, stronger to-day than had been the case at any former period. Nor was this feeling by any means confined to themselves, who might be supposed to know the real strength of the position. It was fully shared by the investing public, who had learned, notwithstanding fluctuations in market values, to appreciate the stability of the earning powers of gas undertakings, grounded, as this was, upon continual and almost uninterrupted increase of business. During the year 1882, which was just seventy years after the starting of the gas supply industry, by the granting of a charter to the very first gas undertaking, the consumption of gas within the United Kingdom was in round figures 57,876 millions of cubic feet, and the number of consumers 1,581,654. For the year 1905, or twenty-three afterwards, the record was 161,408 millions of cubic feet of gas sold, and 5,064,075 consumers. The electric light had made its mark here and there in a smaller increase of gas consumption than would otherwise have been experienced, but its general effect had been to educate the public taste to a more liberal standard of illumination, which had tended greatly to the benefit of gas undertakings; it had also acted as a stimulus to the application of commercial principles to gas management, and with the happiest results. Any reference, however brief, to the highly important and momentous gas legislation of the last few years, by which the industry had been freed from restrictions that were a barrier to its progress, would be unacceptable to that audience unless accompanied by an acknowledgment of the splendid services rendered by Sir George Livesey, in his initiation of this legislation, and of the indomitable pluck, perseverance, and tactical skill with which he fought the fight to a finish. Innovations in carbonizing plant had been much under discussion lately, and although as yet no absolutely definite conclusions had been arrived at with regard to them, their introduction had already served the very useful purpose of directing attention to what was really required of an ideal carbonizing arrangement. The almost absolute evenness with which it was possible to charge inclined retorts fulfilled one very essential condition of good carbonizing; but the discussions on vertical retorts had advanced the matter further, since they showed that they ought no longer to be content with any system which did not ensure obtaining from coal the whole of its gaseous products, without injury to them from overheating, and consequently without the occurrence of stopped

pipes or naphthalene deposits. Whatever might result from the efforts which were now being directed to the establishment of vertical retorts—and they all hoped they would be a success—it was, at any rate, satisfactory to have a clear idea of the points to be aimed at in designing a carbonizing plant. The upward tendency of the coal market had recently been a source of considerable anxiety, and although the keen edge of this had now worn off, the immediate outlook was by no means reassuring. Having regard to the ups and downs of trade, it would be less than reasonable to expect the maintenance of anything like a dead level of prices for coal extending over a series of years, but in their readiness to inflict on gas undertakings the full measure of any temporary inflation of prices, colliery owners were too apt to ignore the fact that these were amongst their most regular and certain customers, but for whom it would be next to impossible for some of the collieries to be kept working during periods of depression. Coal booms undoubtedly caused much mischief by dislocating trade. They operated as a check to industrial development in almost every direction, and in these days of severe competition, it was a very serious matter for them to have to contemplate a substantial increase in the price of gas. It was, however, some consolation that the permanent effect of such booms was usually the development of new coal fields. It might be expected that at such a juncture as the present carburetted water gas would come to the rescue—and so it probably would to some extent. As an economical process, however, it could scarcely be said to have increased in favour, owing chiefly to the uncertainty as to oil supplies, although there could be no reason why the use of water gas in some form or other should not prove a valuable auxiliary if the reduction of calorific value which it occasioned was accompanied by a corresponding reduction in cost. Under existing conditions the position of gas as a lighting medium was an assured one, although this was not always recognised to the extent they might desire. For domestic purposes preference was sometimes given to electricity regardless of cost and of its inferiority to incandescent gas in quality of light, but with the choice that might be exercised by private consumers there was no possible ground of quarrel, since the competition, so far as these were concerned, was, or should be, a fair and open one. With regard, however, to public lighting the case was different. Here, although the superiority of incandescent gas was patent to everyone, it not infrequently happened that electricity was adopted at considerable additional cost to the ratepayers, simply because the local authority possessed electricity works and desired to support their own establishment. There were, it was true, honourable exceptions to this exhibition of partiality which it was a great pleasure to acknowledge.

Mr. J. Reid proposed a vote of thanks to the President for his address. He thanked the Institution for the manner in which they had held out the hand of friendship to the Irish Association of Gas Managers.

Mr. Henry Woodvale seconded the motion, which was passed amidst applause.

Mr. F. W. Goodenough (London) read a paper on the "Sale of Gas," in the course of which he stated that the services which a gas supply undertaking might advantageously perform for its customers comprised the supplying and fixing of lamps, fittings, cookers, fires, engines, and every other apparatus for the use of gas, and gave details as to how this work might most profitably be undertaken.

Mr. John G. Tooms, of Waterford, read a paper on "Gas Consumption—Development of Small Undertakings," which was followed by a keen discussion. In the afternoon a visit was paid to the International Exhibition, where the delegates were received by Mr. James Shanks, J.P., Chief Executive Officer, and several members of the Executive Council, who conducted them to the chief places of interest in the buildings and grounds. In the evening the visitors assembled in the Gas Pavilion and viewed the extremely interesting collection of exhibits there displayed, and, under the guidance of Alderman Cotton, D.L., J.P., Chair of the Works, Lighting and Machinery Committee, the various systems of outdoor lighting were inspected. On the following days further papers of interest were read and discussed, one of which, by Mr. H. P. Maybury, the County Surveyor of Kent, on the "Use of Tar on Roadways," being especially notable having regard to the vexed question of the dust problem. He anticipated that, bearing in mind the Budget speech of the Chancellor of the Exchequer, a scheme will be shortly promulgated by which the cost of road improvement and dust abatement will be more equitably distributed, and that motorists, as a body, would not object to increased licence duty if the funds derived therefrom were utilised for road improvement purposes. In pursuance of this, gas manufacturers would materially

benefit. Since 1903 many experiments have been made and numerous chemical compounds used for road improvement, with more or less satisfactory results; but it is now generally tar. With tar at 1½d. per gallon, the cost of painting the surface of a road per mile by mechanical means varies from £30 to £40, and were all main roads to be so treated, an annual increase of £1,000,000 would have to be faced. This work would represent a yearly consumption of 33,400,000 gallons of tar, its value being above a quarter of a million sterling. It would, therefore, appear that a new market of considerable importance will shortly be opened up, and gas engineers should encourage the use of tar in their immediate neighbourhood by putting the purchaser on the most favoured nation clause. Mr. Howard Humphreys, in giving evidence before the Royal Commission on Motor Cars, said:—"There are several methods of improving roads for the purpose of motor traffic. These naturally vary in expense with the degree of the importance of the traffic. To begin with, the method of hot tarring, more rolling and using less binding, will, in my opinion, do a very great deal towards making a road strong and good. I have recently been in France, inspecting some roads in the city of Paris and its vicinity, where hot tar has been used, and I must say that, although I went as an unbeliever, I came back absolutely converted to the use of hot tarring under proper scientific and climatic conditions."

The following elections were announced:—President, Mr. W. D. Gibbs, Newcastle-on-Tyne; vice-president, Mr. J. W. Helps, Croydon; ordinary members of Council—Mr. Thomas Beveridge, Leamington; Mr. Francis T. Cotton, Dublin; Mr. William Prince, Stoke-on-Trent, Mr. John Young, Hull. The President of the Société Technique de l'Industrie du Gaz en France, Professor Harold B. Dixon, F.R.S., Manchester, and Professor Arthur Smithells, F.R.S., of Leeds, were elected hon. members.

The next place of meeting was fixed for London, and various votes of thanks brought the successful proceedings to a conclusion.

At night the President and Mr. Charles Hunt held a reception at the Mansion House, kindly lent for the occasion by the Lord Mayor. There were several hundred guests present.



BUILDING TRADES AND OVERTIME.

The conference of the building trades was held in London, the delegates present representing a dozen trade unions, comprising a membership of about 100,000. After consideration, three resolutions were agreed to, declaring that, as the prosperity of the nation depended on the spending power of the majority, it was necessary to maintain a good standard of wages, and the rapid spread of labour-saving appliances made it necessary to consider the limitation of hours of work, that unemployment was increased by systematic overtime, and that both employers' and workers' associations ought to co-operate in abolishing unnecessary overtime. It was resolved to call a further conference to decide how to carry out the resolutions.

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Manager for Ireland,
46 and 47 Dame Street, Dublin.

ENGINEERING NEWS.

Carrickmacross (Co. Monaghan).—At the monthly meeting of the Carrickmacross Urban Council, the Local Government Board wrote regarding their inspector's report in connection with Mr. Patrick Duffy's appointment as town surveyor. It appeared that that gentleman had no knowledge of levelling or surveying, and consequently the Council was directed to fill the vacancy. It was decided to advertise for a town surveyor.

Carrickfergus.—A loan is about to be applied for, for additional sewerage works in the town. The engineer is W. D. R. Taggart, C.E., Scottish Provident Buildings.

Down.—Tenders are at present being invited for sewage purification works at Down District Lunatic Asylum.

CONTRACTS.

TO BUILDING CONTRACTORS.

Tenders will be received by me until 13th July, for the erection of addition to Partry House for Colonel H. B. Lynch, in accordance with plans, etc., prepared by me.

Sealed Tenders to be endorsed "Tender for Partry House."

The lowest or any Tender not necessarily accepted.
JOHN RITCHIE, C.E.,
Architect.

Bridge Street, Ballinrobe.

NAAS NO. 1 RURAL DISTRICT.

NEWBRIDGE SEWERAGE WORKS.

The Council of the Naas No. 1 Rural District will, on Wednesday, 3rd day of July, 1907, consider Tenders for carrying out the above works, which comprise the Construction of Pipe Sewers, Manholes, Flush Tanks, Storm Overflows, Lampholes, Fences, Filters, Septic Tanks, and Concrete Effluent Carriers, the supplying and fixing of a Hydraulic Lift, and the Preparation (including under drainage) of about Five Statute Acres of Land for Irrigation Ground, in strict accordance with plans and specification prepared by the Council's engineer, Mr. F. Bergin, B.E.

The plans, etc., can be seen at my office on any day (except Wednesdays and Saturdays) between the hours of 10 o'clock a.m. and 4 p.m., or at the office of the Council's engineer, 36 Westmoreland Street, Dublin.

No tender will be considered which is not on the printed form to be had from the undersigned.

Tenders, accompanied by a schedule of prices, and containing the names and addresses of two solvent securities willing to join in a bond of Six Hundred Pounds (£600) for the due performance of the contract within the specified period, will be received up to 11 o'clock a.m. on the 3rd proximo.

The Contractor will be expected to give a preference to local labour as far as possible, and he must pay all expenses in connection with the preparation and execution of, and Stamp Duty on, Contract and Bond.

The Council do not bind themselves to accept the lowest or any tender, and the acceptance of any tender will be provisional upon the sanction of the Treasury being obtained to the loan authorised by the Local Government Board to defray the cost of the works.

By Order,

D. J. PURCELL, Clerk of the Council.
Council Offices, Naas, 13th June, 1907.

WOODWORKING MACHINIST wanted for Builder's Shop. Apply, stating qualifications, where last employed, wages, etc., D 296, this office.

Assistant desires situation with builder; general knowledge, management, book-keeping and accounts; good references and experience. Apply—Box 157

STEAM WAGGON.

"Thornycroft" Steam Waggon; 3 ton; excellent condition; subject to any expert examination; lot spare parts; must be disposed of immediately.—Peare's Motor Works, Waterford.

J. & C. McGLOUGHLIN, Ltd.,



Telegrams—
"Metals, Dublin."

Gt. Brunswick St., DUBLIN.

Telephon
No. 705.

WAYGOOD LIFTS.

Head Office and Works: Falmouth Rd., London, S.E.
Local Offices: Fountain Street, Belfast.
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A JOURNAL DEVOTED TO

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ARTS AND HANDICRAFTS.

Every Second Saturday.

[Established Jan 1859.]

No. 14—Vol. XLIX.

HEAD OFFICE

July 13, 1907.

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DUBLIN

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TOPICAL TOUCHES.

There is no doubt but that building matters are not now nearly so dull as they were this time last year.

* * * *

On Tuesday last, on his way to Ireland, the King laid the foundation of the new University of North Wales at Bangor. Mr. Henry T. Hare is the architect.

* * * *

Mr. R. M. Butler has been appointed assessor to judge, in conjunction with Mr. P. J. Lynch, M.R.I.A.I., the designs (nine in number) submitted in competition for the New Technical Institute at Limerick. The proposed outlay is about £10,000 to £12,000.

* * * *

The assessors placed the design of Messrs. Morris and Ryan, of London, first, as being the only one submitted which at all conformed to the conditions of competition. The design of Messrs. K. Parry and Ross was placed second.

* * * *

The deplorable weather that has prevailed during the last two months, not alone has retarded agriculture and horticulture in every shape and form, but has caused much loss and trouble in the building industry. The number of "broken" days has proved quite phenomenal for this time of year. In fact, it has been impossible to get a whole day's uninterrupted work.

* * * *

At the Exhibition a notable stall is that of the Galway Granite Company, which has a very fine display of the various granites and marbles worked by this company. The variety is quite remarkable. Here we see the beautiful red granites of the County Galway, Shantallagh, Barna, etc., the splendid black marble of the Merlin Park Quarries, and the exquisite Connemara green marble from ReCESS. Quite a new marble is the "Irish White," a delicately veined and tinted white marble, much like pavonaza, or a white onyx.

* * * *

Some photographs showing the fine works of the company, and the magnificent granite quarries are displayed, while a couple of mantel-pieces in green marble are a prominent and most effective feature. No person interested in building or decorative matters should miss seeing this stall.

* * * *

Another stall of considerable interest, and one which also marks the great revival of interest in our native products and manufactures, is that of Messrs. George Watson and Co., of Liverpool and Dublin, the enterprising firm who some time ago bought up the Liscannor Quarries, Co. Donegal, and the Mount Charles Quarries, Co. Donegal. The Liscannor stone is a hard, durable stone of blue-green colour, which makes a beautiful facing for hammered work; the Mount Charles stone is well known, and is one of the finest of free-stones when the right beds are selected. It has a most beautiful appearance, and when finely chiselled has a particularly good effect.

Additions to the Jesuit College, Milltown, Co. Dublin, are contemplated. Mr. J. P. Wrenn is the architect.

* * * *

The tender of Mr. S. J. Hussey, Kensington, Tere-nure, Dublin, has been accepted by the North Dublin Rural District Council for 24 labourers' cottages at Artane, at a price of £138 7s. 2½d. each.

* * * *

The building work announced for the present summer during the past two or three months corroborates very decidedly our forecast during the past spring, that there would be a very decided recovery from the deplorably dull state of the building trade which prevailed during the past two years in Dublin.

* * * *

We cannot say that this revival indicates any very marked change towards building prosperity. In fact, we think it is a mere temporary improvement. We may be wrong, and sincerely trust we are.

* * * *

Messrs. Wm. Connolly and Son are contractors for a very large contract about to be carried out at Clongowes Wood, the Jesuit College, Co. Kildare. Messrs. Ashlin and Coleman are the architects. The same contractors' tender has been accepted for the preliminary works in connection with the Dominican Jubilee Memorial Chapel, dormitories, and other works, Dublin.

* * * *

Mr. Robert Kelly, of Bantry, has been selected as contractor for the new church at Castletown-Berehaven, Co. Cork. The contract will amount to about £11,000. The architects are Messrs. Doolin, Butler and Donnelly, and the surveyor Mr. D. W. Morris, of Dublin. It is proposed to use Messrs. M'Cartan's Castlewella granite for the whole of the stonework, inside and out. Mr. Kelly is a well-known War Office contractor, who has carried out extensive contracts for the War Department at Bere Island.

* * * *

Last week the Attorney-General sat in the Library, Dublin Castle, to hear an application on behalf of the proprietors of the Theatre Royal for his sanction to a proposal to sanction certain proposals for enlarging the theatre. The suggested enlargement will comprise a new bar, lounge, winter garden, as well as storage for scenery. Serjeant O'Connor, on behalf of the applicants, declared that this proposed addition would make the theatre "the most complete in the world." In response to an expression of surprise on the part of the Attorney-General, he said that, of course, he did not mean that it would equal or surpass such structures as the Grand Opera, at Paris, but that it would not be excelled by any theatre in the United Kingdom.

* * * *

Even as it stands, the Theatre Royal compares very well with any of the London theatres.

* * * *

The suggested additions will take the form alluded to, and have been designed by Mr. C. H. Ashworth, architect, Dublin.

THE ARTISTIC TREATMENT OF THE EXTERIOR OF THE PIANOFORTE*

BY WILLIAM DALE, F.S.A.

(Concluded.)

Sheraton's Designs.

For many years I was familiar with Sheraton's design for this piano, and acquainted with the description of it I have quoted. To-night I am able to show you a photograph of the actual instrument. A few years ago a Parisian dealer in antiquities wrote to a lady in England, whom he knew to be a collector of things rare and curious, that he had a piano covered with medallions made by Broadwood, and dated 1796. It was none other than Godoy's present to the Queen of Spain, and it is now in a London drawing-room. Probably looted from Spain in the Napoleonic wars, it remained unknown, but well cared for during a number of years, most likely in some French chateau, until thrown into the market and purchased by this Parisian dealer. Taking it altogether, it is in splendid preservation. The satinwood has mellowed with age, the keys are unworn, and the medallions perfect. As it stands it is a good illustration of the warfare between the designer who wants to be artistic and the manufacturer who must obey the requirements of a musical instrument. Sheraton designed separate and unconnected legs for the piano. It was at a time when such a thing was not known, but the piano-maker appears to have given in and abolished the frame and stretcher. The pedals, which should have been attached to each front leg of the frame, were made to depend from the body of the piano, and a third pedal, added in the middle, acted upon a pad, which pressed against the sounding-board, producing a sourdine effect. This arrangement spoils the general effect of the lower part, and formed no portion of Sheraton's design. "The Prince's portrait in front, by Taylor," one looks for in vain. Above the keyboard, surrounded by beautiful decorated work, is the oval where the maker's name and date were always written. In this case the name is written on the rail covering the dampers, and the oval is covered with a device not well put on. Here I should say was once the "Prince's portrait in front," a miniature, by Alexander Taylor, the miniaturist, for which he received £10 10s.

Alexander Taylor was an occasional exhibitor at the Royal Academy for twenty years, and, curiously enough, the last time he exhibited was 1796. Such a high price being paid, the portrait was most likely taken from life, and, if so, the redoubtable Godoy must have been in England in the spring of 1796.

Before passing on to mention any decorated pianos of modern times, I should like to show you upon the screen some of the old instruments to which I have referred, viz.:—A spinet by Charles Haward; a spinet by John Hitchcock; a painted harpsichord; an English harpsichord by Shudi and Broadwood of 1770; a square piano, 1782; a grand piano of 1793; a cottage piano by Hawkins, 1810; the "Prince of Peace" piano of 1796.

Other Modern Pianos.

In passing from the art of a bygone age to that of modern times, I am met with the difficulty of knowing where to choose. There are no leading piano-makers that have not at some time or other produced what are called art pianofortes, and some are showing such to-day. I fear if I were to attempt to describe them I should certainly omit some I ought to have mentioned. Moreover, there is another reason why I should leave them alone. In nearly all instances they are the outcome of the taste of some private individual whose means have been unlimited, and show a wealth of decoration and treatment which, in my humble opinion, it would not be wise to follow even if means permitted. It will be more practical to ask ourselves if the pianoforte attainable by folk of ordinary means cannot be made far more beautiful and artistic than it is.

A Piano by Mr. T. G. Jackson, R.A., Archt.

Before dealing with this, the final part of my subject, I must mention two pianofortes designed by two of the greatest artists of the present generation, and also refer to a pianoforte designed by our chairman, in 1892, for Mr. Athelstan Riley, a lantern slide of which I am able to show you. The wood of the case is mahogany, stained to a very dark green, almost black, affording an excellent ground work for the inlays of various woods, mother of pearl and tortoise-shell up the top of the lid. The inside of the lid is decorated with Gesso gilt on a red ground—the nearest

approach to the "Rückers'" red I have seen. The black keys are inlaid with ivory, and the fronts of the naturals have the "Hitchcock" device. A minor detail, but an extremely important one, is that the ivory is, with great good taste, not bleached, but left its proper colour. The construction of the stand is novel, and will be best understood from the picture.

One by Mr. Fox, F.S.A.

In 1878 Sir Lawrence (then Mr.) Alma Tadema had constructed for him a grand piano which was designed by himself and made after the drawings of Mr. G. E. Fox, F.S.A. It was made in the accepted form of the present day—but the design was Byzantine. The decoration consisted of inlays of mahogany, ebony, tortoise-shell, ivory, and mother of pearl, with carvings of oak and ivory, and the work was carried out by Broadwood. Incorporated in the design was a massive seat, the back of which was painted by the artist. The inside of the lid was lined with parchment, and is now covered with the autographs of famous musicians who have played upon the instrument. Further description is unnecessary, as you will see presently what it was like. It must be regarded as altogether unique, and, like the art of its designer and owner, exceptional in its character and distinction.

The Famous "Orpheus" Piano by Burne-Jones.

Two years after, in 1880, was made the famous "Orpheus" piano, the offspring of the genius of Burne-Jones. As I was intimately connected with the inception of this piano, I am able to state that Burne-Jones was largely influenced by William Morris, and had the support and co-operation of the Faulkners. Boldly reverting to the model of 100 years before, Burne-Jones, as I have already described, designed a curve for the bent side, which was an exact repetition of the older curve, although with a greater sweep, owing to the extension of the front, required by the modern compass. The four-legged frame, with its stretcher, was reproduced, and even the loose board in front of the keys, making the front of the instrument rectangular. Several pianos were made by Broadwood of this form. One was the artist's own, perfectly plain, made entirely of oak, and stained all over by his friend Morris such a bright green colour that no one could say æsthetic colours were always dull. Another made for Mr. Muir Mackenzie was of plain oak, and was decorated all over in Gesso work by Miss Faulkner. The "Orpheus" piano was made for his friend and patron, Mr. William Graham, and was painted within and without. Round the sides almost in monochrome is depicted, in circular designs, the story of Orpheus. Drawn first in freehand by the artist, they were copied in by his pupils, and finished by himself. The conception of this old-world story is strikingly original. Orpheus, as he enters Hades, is met with a rush of wind, which one seems almost to feel. As he plays his lyre before Jupiter and Juno and makes his request, the God and Goddess are deeply moved, and strong emotion is visible in their faces. As Orpheus is seen rushing through the mists of the nether world, Eurydice lifts her hand to her ear as she catches the familiar sound of his music; while the triple-headed Cerberus, lithe and serpent-like, forgets to bark, and stands agape. Then, with the precious living burden on his back, Orpheus returns. Anxious to behold the form he loves so well, he half turns, and, conscious that with that act Eurydice begins to slip away, he clutches her garments with fearful earnestness. It is too late, the fatal deed is done, and Eurydice is a pale ghost once more. An oblong panel on the end shows the maidens weeping over her body.

The lid of the piano was sent to the Grange, and painted entirely by the artist. On the top is an angel and a poet and a bold arboreal design, amongst which is a scroll from Danto, a poem on spring from the Vita Nuova. Inside Mother Earth is seated on a heap of gravel, surrounded by her good and bad children—an allegory which may be translated into the concord and discord inseparable and immutable in the musical web.

A Few Suggestions.

In the first place let us try to believe that the dazzling surface of French polish is not beautiful. You have, perhaps, heard of the American girl with whom this question alone weighed, and who pointed to the piano of her choice with the joyous exclamation, "Look, Ma, how it shines!"

* A paper read before the Society of Arts, London.

To dull wax polish there can be no objection. There is, however, no surface like that which is left from the finest glass-paper, and if you employ hand-carving—and why not do so?—the carvings should be left from the chisel. Quiet inlays of wood have a beautiful effect. Ormolu, if not overdone, is suitable in many cases, and might we not with advantage revert to the plaques and medallions of the eighteenth century? Some makers have already copied the beautiful strap hinges of brass-work, and much more might be done in this direction.

But I feel that the art of painting is most neglected. We need not wait for a genius like him whose work we have admired to-night to give us the creation of his inventive skill. There is plenty of good work suitable for copying, and there are amongst us students and artists who might employ their talent in this direction usefully and profitably. The panels of the cottage piano might be painted in the way that Angelica Kauffmann painted the panels of cabinets, while the surface of the grand piano offers much scope for such decorative treatment.

Discussion.

In the discussion which ensued, Mr. H. M. Statham, Editor of *The Builder*, desired to emphasise a point which the author had not forgotten—that the pianoforte was, in the first instance, a musical instrument; but he felt a little jealous, sometimes, of the idea of making it too much a vehicle for ornament, which he thought should be subservient to its original use. He spoke as a musical man as well as one interested in art. When a friend asked him to try a piano, he ran his fingers over the key-board, and if it was satisfactory he did not at the moment think much of the design. The highly-ornamented old stringed instruments to be seen at South Kensington were very incomplete, and very little music could be got from them; but when one came to Stradivarius and Amati, it would be seen that their violins were of the best possible shape for the production of the required sound, and there was but a very severe ornament and nothing else. Such instruments, he maintained, were works of art; they had the beauty of fitness, such as he thought should be aimed at in the main in the case of the piano. There might be exceptional instances where one was inclined to spend a large sum in making a piano a specially beautiful object; but in general what had to be looked to in the making of a piano, as Mr. Rose suggested, was the shape, which arose naturally out of the construction. Mr. Dale was quite right in his references to architecture. What was wanted were fine mouldings and right proportions for expressing construction. The greatest care should be taken in inserting anything, in the shape of added ornament, which at all checked the vibrating power of the instrument. Personally he should be very shy of putting porcelain plaques, or anything of that sort, into a piano; and he rather took fright at the large brass strap hinges, referred to by the author, which, he thought, might rather tend to spoil the tone of the piano. The material which was wanted to surround the strings was that wood which most harmonised with and reinforced the sound. Returning to the square shape of piano, he should have liked to hear something from Mr. Rose as to the length of the strings. If the bass strings were shortened the pitch must be obtained by thickening them, but that would not produce the same tone. To get the finest tone out of a grand long bass strings were necessary. A long-tailed piano, therefore, was really the finest instrument. Short pianos, which were so much disliked on account of their appearance, he objected to on musical grounds, because there was less uniformity and volume of tone. The shape of the grand arose, he thought, naturally out of its construction, and, therefore, artistically it was correct. He had seen one of the square pianos designed by Mr. C. R. Ashbee, Architect, to which Mr. Rose had referred. It was not the old form of square piano with the key-board at the side, but an enormous square thing with the key-board at one end. It seemed to him a clumsy thing, and calculated to fill up a room much more than the ordinary type of grand piano.

A Word of Wisdom.

He should like to say one word with regard to the key-board. He deprecated any sort of artistic tampering with the black and white keys. One sometimes heard of people with æsthetic tastes having the black keys white and *vice-versa*, or having inlays on the black keys. But in process of time that might produce a little roughness on the surface of the key which would injure the touch; and the eye also was apt to be misled. Black and white made a very strong contrast, and it was undoubtedly best for the player. It fell in, too, with the principle for which he had been contending—that no ornamentation should be applied which, in any way, interfered with the real use of a pianoforte as a musical instrument.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

The following is the draft of a letter which the Council have addressed to every public body in Ireland:—

ARCHITECTURAL COMPETITIONS.

SIR,—I am instructed by my Council to offer the following suggestions regarding the conduct of any Architectural Competitions which may be hereafter promoted by your Board.

As the most essential element of success in any competition is that the instructions and conditions to be issued shall be *definite, practicable, and equitable*, and as these requirements can best be obtained by the appointment of a Professional Assessor to prepare these documents in consultation with the Promoters, and afterwards to make the award in accordance therewith, it is strongly recommended that this step be taken at the outset.

The President of the Royal Institute of the Architects of Ireland is always prepared to act as Honorary Adviser to the Promoters in their appointment of the Assessor, who should be an experienced Architect of repute in independent practice in Ireland.

The "Instructions and Conditions" should, in any case, be drawn up in such a manner as to form a binding agreement between the Promoters and the Competitors, and should contain the following provisions:—

- (a) The Instructions should contain all the necessary information as regards the site, accommodation, limit of cost (if any), description of the drawings, specification and estimate required, and a statement of any other requirements deemed necessary by the Promoters.
- (b) All the designs sent in should be submitted to the Assessor, due precautions being taken to prevent the identity of the Competitors being known to him.
- (c) Each design should be accompanied by a declaration, signed by the author, that the design is his own, and was carried out in his office.
- (d) Any of the designs which, in his opinion, fail to comply with the instructions or conditions, should be excluded from the Competition.
- (e) An award should be made by him, either independently or after consultation with the Promoters, before the identity of the Competitors is disclosed.
- (f) The author of the design placed first should be employed to carry out the work at the usual professional remuneration as defined in the Royal Institute of the Architects of Ireland schedule, unless it should appear after the identity of the author has been disclosed that there is some valid objection to his employment and as to which the assessor shall be satisfied, in which case he shall receive such compensation for the non-fulfilment of this condition as the assessor shall consider fair.

The foregoing suggestions are made on the assumption that an assessor has been appointed as recommended, but in exceptional cases where there are special reasons for not adopting this course, the main principle of the provisions *a, b, c, d, e, f* should be at least maintained.

Signed on behalf of the Council,

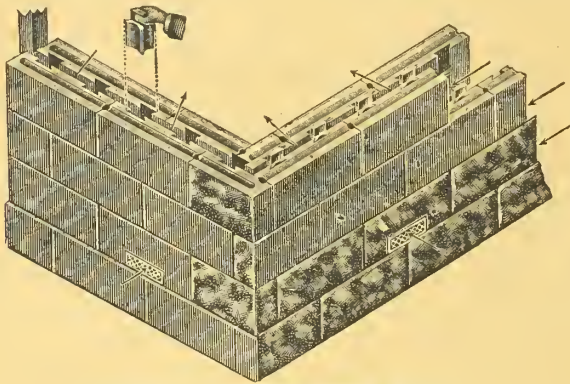
JAMES H. WEBB, Hon. Sec.



We have received from E. H. Shorland and Brother, Drake Street Works, Stretford Road, Manchester, a copy of their new supplementary catalogue of their latest patterns of patent warm air ventilating Manchester grates, patent Manchester stoves, with open fires, and patent exhaust roof ventilators. In this catalogue there are several new designs of Manchester grates and ventilators, and to make the catalogue more attractive, they have illustrated some of the Manchester grates and stoves in colours. All the designs of patent Manchester grates are shown without front bars, and have their latest pattern low-fire projecting backs. The continued popularity of the patent Manchester grates and stoves lies in their smoke-consuming properties, and in the fact that the rooms are equally heated all over. On the outside cover of the catalogue is given a view of the Royal Victoria Infirmary, Newcastle-on-Tyne, and also an interior view of one of the wards in the same building, showing the patent Manchester stoves in use. This Infirmary, it will be remembered, was opened by His Majesty the King in July of last year.

CAVITY VENTILATING BUILDING BLOCKS.

There is probably no social subject which commands greater attention at the present time than that of the housing of the poor. In the towns the provision of artisans' dwellings is a problem that has been taken in hands by most of the great municipalities, and in the country the erection of labourers' cottages has received great attention, notably in Ireland, where the Act, recently passed, and now in operation, will bring about the building of labourers' dwellings on a very extensive scale. All those who approach the problem of providing cheap and healthy homes for the people are confronted with the high cost of building, and it is universally felt that the one great desideratum is a cheaper method of construction. Economy in plan may do a good deal, as is exemplified in the model cottages erected at the International Exhibition at Ballsbridge. But the recent exhibition at Letchworth clearly showed that something cheaper than ordinary brick construction must be found if the problem of building a really satisfactory cottage for an inclusive sum of £150, is to be solved, and it was generally recognised that the few examples in which some kind of concrete block was adopted were amongst the most successful and promising. In view of the great importance of the subject we are glad to be able to bring under the notice of our readers a method of concrete block construction which is remarkably inexpensive, and which seems to have some special advantages, even as compared with other systems of building blocks. This is the Cavity Ventilating Building Block, for which patent rights are



The Cavity Ventilating Building Block.

held in this country, and practically throughout the world, by the Cavity Ventilating Building Block Syndicate, Ltd., who also hold patents for the machinery used in the production of the blocks.

It is claimed by the Syndicate that the cost of building erected with their blocks is about one-third less than if brickwork were used. In appearance the blocks look like stone, but they cost only about one-tenth as much as Portland stone. Not only are the actual blocks inexpensive as compared with brick or stone, but the labour involved in laying them is much less. It is estimated that a man would easily lay twelve blocks an hour, which would be equivalent to 1,440 bricks a day, about double the output of the average bricklayer. Moreover, the blocks can be laid by means of comparatively unskilled labour, owing to the simplicity of the construction. Further, the item of exterior scaffolding may be dispensed with, as the erecting is done from the interior from floor to floor.

But the cheapness is by no means the only qualification of these building blocks. Apart altogether from the question of cost, the method is one that merits attention by reason of its novel principle and the special advantages that are claimed for it. The blocks are made under great pressure from cement, gravel, granite, marble and slab debris, and many other so-called waste products. They are made to suit any thickness of wall, and in two sections, connected by dovetailed dowels. They are hollow, as their name implies, and by the method of forming cavities, both vertical and horizontal, ventilation is secured, thus giving a properly ventilated house, which ought to be warm in winter and cool in summer. The mode of construction is fire-resisting, and, therefore, well adapted for town and country use. Being perfectly bonded, it is quite rigid, and the makers claim for it a permanency not less than that of a stone building. Hot air may be forced through the cavities if the building is required for a hot-house; or cold air if it is needed for cold storage. The cavities may also be filled with bitumen or asphalt, so as to make a watertight wall for the construction of swimming baths, storage tanks, etc.

It will thus be seen that the Cavity Ventilating Block is a building material of very wide adaptability. We have

not seen a building actually erected with the blocks, but it is stated that the appearance is all that can be desired. From the information supplied to us, and the illustrations we have seen, we feel justified in recommending this method of construction to the careful consideration of our readers.

A SUBSTITUTE FOR LEAD-JOINTING.

It is hardly necessary, in a journal circulating amongst builders and engineers, to dilate upon the fact that lead is an exceedingly dear commodity, and it would be equally superfluous to mention that for the jointing of iron pipes lead is the material in general use. If, therefore, a substance could be put on the market of as great value as lead for jointing purposes, and very much cheaper, it would meet with a universal welcome. But if, in addition, such a material were more efficient than the heavy metal, it would be regarded as a notable invention and a great boon. It is claimed that "Leadite," which is a composition for pipe joints, fulfils all the conditions we have just named, and it has, as a matter of fact, been used with complete success in the United States for the past twelve years. It may be mentioned, for example, that the Waterworks Department of Philadelphia (population, 1,500,000) has abandoned the use of lead, and uses "Leadite" entirely. There are numerous testimonials from city and waterworks engineers to the effect that it makes joints on water and gas mains and iron sewers which are stronger than joints made with lead.

"Leadite" is composed of mineral ingredients, finely ground and thoroughly mixed. The price per pound is about twice that of lead, but as it weighs only just one-sixth as much (118 lbs. per cubic foot, as against 708 lbs. lead), it saves more than 50 per cent. in material alone. The mode of using it is to melt and pour the material into the joint, in the same manner as is done with lead, but less heat is required (about 400 degrees), and, moreover, there is less skilled labour required in the whole of the work. "Leadite" joints also require no canking after pouring, and, in consequence, the labour bill is fifteen to twenty per cent. cheaper than in the case of lead joints. It may not be generally known that lead joints are singularly inefficient. Sir Frederick Bramwell, in a report showing the waste of water in underground leakage from mains in more than one hundred cities and towns proves that of every three gallons measured into the mains, two are lost by leakage underground. Sir William Hope, C.E., the eminent waterworks engineer, says: "Even now a majority of the water undertakings in this country lose by leakage more than one-half of the total quantity of water supplied from the source. The proportion is often higher." James C. Boyles, M.E., Ph.D., estimates that the average wastage through leaking is from 60 to 66 per cent., and in neglected systems often much more. The causes of leakage in lead joints for either water or gas mains are manifold, but about eighty per cent. of the leakage is attributable to expansion and contraction. An elaborate series of tests have been made in America to ascertain the behaviour of "Leadite" joints when exposed to the conditions which bring about the failure of lead joints, and in all cases the "Leadite" has stood up successfully. It has been demonstrated again and again that a "Leadite" joint, when properly cast, cannot be blown out by water pressure. It will stand as long as the pipe will stand. The material appears to us to deserve the attention of engineers of gas, water, and sewerage works, and we advise them to give it a full trial. Full particulars, and an interesting pamphlet on the subject, can be obtained from the sole British representative, Mr. H. S. Dickinson, 42 Union Street, Bradford, Yorks.

BUILDING MATERIALS FOR THE SUDAN.

Reporting on the trade of Port Sudan for 1906, Mr. T. B. Holder, Second Secretary to His Majesty's Agency at Cairo, says that there is an excellent opening for girders for building purposes. These are at present supplied from Belgium. They are considerably lighter and much cheaper than those of British make, and are apparently strong enough for the work they have to do. The demand will be still greater when the land-tenure question is settled and the building of the town commences in earnest.

ARCHITECTS WANTED

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COLOUR VARIETY IN BUILDINGS.

The increasing demand, or shall we say the fashion, for more colour and less monotony in our public buildings is creating a timely demand for stone that meets our æsthetic requirements economically. Again, much has been written of late as to the rapid decay developed in some costly buildings in many British cities and industrial centres within the past twenty years. It is possible these things are due to the deplorable design to obtain materials whose prime cost is small, and whose reliability to weather city atmospheric conditions is proportionately trivial; and possibly to a want of affirmation of colour-effect by the older architects and builders. A thoughtless conservatism has also influenced matters. It has been urged that the older buildings and cathedrals were of one colour, and therefore one must continue the practice, forgetting, apparently, that in the middle age transport was difficult and dangerous, and buildings were necessarily constructed of local materials. Transit facilities and methods of construction have entirely altered this position. Nowadays steel and metal components must come from certain manufacturing centres, and the cut stone from various quarries. We have, therefore, a splendid opportunity to supply the cut-stone parts ready for fixing if we have proper Irish transit facilities at reasonable rates. The more recent introduction of clay goods variously coloured has also assisted our change of taste. And so the desire to get away from the tediousness of buildings or streets of buildings all the same tone, and to employ materials of two or more colours, has become universally manifest. The result is a pleasing variety and contrast that is most creditable to the good taste and happy experience of modern architects.

This movement has been progressing for some time in the more rural parts of England. A serious effort, however, is being made to brighten and enliven city architecture. The main difficulty, of course, has been to get a stone of suitable texture and appearance. It would be impossible to surpass for general merit most of the building stones of Ireland. They are equally reliable for interior or exterior work, and are specially constituted to withstand the acid-laden atmospheres of British industrial centres. This is a point that is not easily understood in agricultural Ireland. A London building, say, of cream-coloured Portland or Bath stone is practically black in ten years. It has become covered with an ever-increasing layer of soot. This becomes sodden in the winter months, the sulphuric acid penetrates the stone, and either eats away the surface or disintegrates the entire block. The absolute urgency, therefore, of a weather-resisting stone is apparent, if the building is intended to be even comparatively permanent. And as many of the British building stones now specified are durable only in name, a very big market is ready for a really good article at a fair price. As the proprietors of many Irish quarries can urge their claim for durability, not on some modern chemical analysis, but rather on the present conditions of buildings that have been erected in both country and city districts for centuries, their claim for consideration is undeniable. This is the practical test which architects naturally require and demand. It would assist this industry very much if it could be ascertained and demonstrated from what particular quarry each of our abbeys and ancient buildings could have been built. In addition to the time test for weathering properties a good building stone should also be (a) compact and close in grain, (b) even in texture, (c) especially strong, (d) free and true in working, (e) able to carry a sharp arris, (f) outline the finest details clearly, (g) and harden considerably on exposure. A stone that is particularly attractive and handsome in appearance, and can be recommended in every way for decorative carving, would, of course, especially commend itself for church and high-class work, either in Ireland or England. Durability is, however, the first essential. If one can show a stone that has been used in a twelfth century building, and that is well preserved to-day, one clearly has a genuine proof of durability that very few quarries can furnish. It would be well for English and Irish architects to require a practical proof of this sort at any rate in public and national buildings.

There has been heretofore rather a tendency by Borough Surveyors, etc., to specify from a "stock" list. It is hoped this practice may continue to be discouraged, as it is likely to prejudice, or even preclude, materials that are at least as good as those that have been previously specified.

Lastly, we must not only handle our materials in the latest and most economical way to meet all modern stone-steel or stone-concrete requirements, but we must be able or willing to guarantee prompt and regular delivery. It is hoped the carrying companies shall do all in their power to

assist this potentially important industry. Not a little remains to be done by the quarry owners themselves. Stone, either dressed or in blocks, is a heavy, difficult material to handle. Co-operation or co-ordination amongst the quarry owners of a district would relieve, if not remove, many of the present transit difficulties. If, say, certain days and times could be arranged for the delivery of all stone goods at railways and docks by quarry owners of a district, trains, boats, men, and hoisting tackle would be in readiness. Even allowing an *ad valorem*, or the most satisfactory rate to be quoted, it is quite unreasonable to expect every facility for carriage to be constantly in readiness. A penny a foot makes all the difference in the price of a stone, say, at London. It is clear, therefore, that the carriage rate must be very moderate where the consignment is costly in working and difficult to handle. All contracting parties must co-operate if a profit would be found for anyone. It is not improbable, too, that a system of depots in England and Scotland would facilitate the trade in Irish building stone. Materials from, say, the west and north-west coast could be shipped in the summer, when weather and labour conditions would be most favourable. A good deal also depends on the way we submit particulars of our goods. There are many limestones or materials in Ireland that have only been so far used as general building stone, axed scaffold or rough chiselled; whereas, if polished, they have a beautiful appearance, and might be used for interior decoration.

Perhaps sufficient has been outlined here to show that the quarry industry can be made a great source of wealth to Ireland if properly organised and developed.

NENAGH.

OUR ILLUSTRATIONS.

The Casino, or Temple, at All Hallows' College, Drumcondra, Dublin.

This charming little temple, or casino, stands in the grounds of All Hallows' Missionary College, and is an exquisite little piece of work. The drawing is by Mr. W. Curtis-Greene, and is from the last number of "The London Architectural Association Sketch Book," which reached us for review some time since. This volume of the sketches more than maintains its splendid reputation. There is no other publication like it, in the character and quality of the work illustrated, the beauty of the draftsman's hand, and the scale upon which it is drawn are alike unequalled. If the Association had never done anything but establish, and year by year maintain, this ever-fresh sketch book, that alone would establish a record. The subscription is extremely moderate, only a guinea a year, and it is the very best architectural guinea's worth we know of.

The subject of the present illustration comes in appropriately enough after our reproduction of the beautiful interiors of Belvedere House which appeared in our last issue.

The casino figures in the place of honour on the frontispiece of the volume reviewed—the Sketch Book of the London Architectural Association. We wonder how many Irish students know even of its existence. How many have measured it. Possibly not one.

It is most deplorable, indeed, to see much of our fine old Irish work of all periods rapidly disappearing without its being placed upon record by means of good measured drawings. When may we hope to see a similar, if more modest, Irish Association Sketch Book?

What is now All Hallows' Missionary College was once (in the eighteenth century) one of the numerous residences of one of the numerous Beresfords. The little temple, a unique and charming little work, is said to have been imported from Italy, and, indeed, it has some appearance of good Italian work. The story goes that Beresford saw the structure on his travels, bought it up, had it taken down, brought over, and set up in the grounds of his residence. Be that as it may, it was, we believe, never completed where it stands, and was never roofed in. However, the erection of such a building, under such circumstances, further proves the existence of a high degree of culture on the part of the Irish gentry of those days.

All Hallows is very conveniently reached from Dublin, being only a few minutes' walk from the Drumcondra tram. The College authorities are very kind in admitting strangers. Mr. Curtis-Greene visited Dublin some years ago on behalf of our contemporary, *The Builder*, and made a very fine series of sketches of Dublin architecture.

We hope to reproduce some further illustrations from the Sketch Book, and also from time to time drawings of Irish work.

THE IRISH BUILDER AND ENGINEER.

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CONTENTS.

PAGE

Topical Touches	473
The Artistic Treatment of the Exterior of the Pianoforte	474
The Royal Institute of the Architects of Ireland	477
Cavity Ventilating Building Blocks	478
A Substitute for Lead-Jointing	481
Colour Variety in Buildings	481
Our Illustrations	481

LEADER:—

Building Cases	482
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COMMENTS:—

Appointments of Architects under the Labourers Acts	485
The Sanitary Congress	485
The Institute and the Cork Sanatorium Competition	485
Arbitration Award Disputed	486
Imports	486
Obituary	487
Correspondence	487
Building News	488
The Royal Sanitary Institute—Congress in Dublin	493
International Exhibition.—Oil Gas Apparatus	501
Belfast City Hall	501
Malahide Water Supply	501
A Ferro-Concrete Breakwater	502
Engineering News	502
Contracts	503

BUILDING CASES.*

During the past couple of years we have welcomed quite a number of high-class works relating to the law affecting architects, engineers, surveyors, and builders. These works to which we refer are all the work of lawyers, and not architects or amateurs, and are naturally the better for that, because any work professing to deal with the complicated and involved problems of building law must, of necessity be written by a lawyer, and a sound lawyer at that, to be of any value. Hitherto we have had, first the exclusively legal and highly technical works, intended wholly and solely for the study of lawyers, and far too complex for the ordinary architect to avail himself of; for instance, there is that splendid work, "Russell on Arbitrations," the earlier editions of which are now very valuable. On the other hand, we had a series of little hand-books professedly written for architects or engineers, and frequently written by architects. Some of these were excellent in their own little way, but were in many respects very faulty, and occasionally even harmful. For example, we remember one (not, it must be said, by a lawyer) which laid down a number of propositions and laws, and even quoted a few decisions, but in the whole book there was not a single reference to enable the reader to refer to the law reports giving the particular case. Now, a reference to a case, to be of any value, must give chapter and verse. Such works only did harm, because they gave vague statements, without the proof, and so complicated and encouraged legislation. We are not now suggesting that a work designed on true lines of good law will enable one who is not a lawyer to answer questions of involved law for himself, because, as a rule, the man who does that is in the posi-

tion of the reader and student of "every man his own lawyer," who, as we all know, "had a fool for his client." But a good book on building law is of value, first to the client, and second to the enquirer. If the architect finds in it a case or a proposition that appears to tally with the problem he has to deal with, he will find also that it is based upon some sound principle in the shape of a reported case, and the reference to the case is almost invariably given, so that, upon locating the case that seems identical with his own, he can direct his counsel's attention to it. Often the legal mind will find a flaw that proves the case relied upon wholly valueless, but in other cases counsel may be assisted to important conclusions thereby. We mention these facts because, otherwise, there might be encouraged a tendency to buy, with a wrong purpose, books dealing with these subjects.

Mr. Morrow (who is a graduate of the University of Dublin) has prepared his book in the form of a digest, and though, perhaps, not quite so voluminous as some others which are in the form of text-books, is more readily of reference, and, therefore, perhaps much more agreeable to the lay mind. The digest of cases decided is practically in alphabetical form, with the addition of a most admirable index.

The work is fairly general, and not confined to such matters as, for instance, the relations of builder and architect, etc., etc., but deals with many other subjects, such as "light and air." A glance through the volume, with its alphabetical headings, at once brings home to one the multiplicity of important and highly contentious points that may arise in building from the time the client first hints his oftentimes halting and incoherent ideas to the hapless architect or engineer, to the important moment when the House of Lords pronounces its final and unappealable decision on some vexed question. Few other callings have this peculiar liability to strife and contention to deal with. For instance, Mr. Morrow records an action against an architect for "negligence in estimating cost," another against a surveyor for "negligence in measuring up," "negligence in preparing plan." Again we learn that, under certain conditions, the instructions of the architect cannot be made to justify deviations from the plans as against the client.

Where a builder becomes a bankrupt, the employer's right to seize the plant, because of non-performance, seemingly remains unimpaired against the trustees in bankruptcy.

Several Irish cases are recorded. There is the somewhat curious one of *Antisell v. Doyle*. The architect engaged Mr. Antisell, a quantity surveyor, of Dublin, to prepare quantities. All the tenders exceeded the contemplated outlay, and the client declined to pay Mr. Antisell his fees. Mr. Antisell thereupon sued, relying on a custom in the building trade, whereby the client was liable for the surveyors' fees in the event of no tender being accepted. It was not proved that the client had authorised tenders being called for. The jury found that the plaintiff's employment had not been sanctioned by the employer, and was not within the scope of the architect's employment, and that the alleged custom did not exist at all! Mr. Justice Madden declined to enter judgment, because, he said, the finding was against the evidence. Nevertheless the Court of King's Bench, in a considered judgment, held that the defendant was entitled to judgment. This case dates from (1899) 2 Ir. R. 275. It is a somewhat curious one, and we fancy there must have been some circumstances existing which are not reported, as it is at variance with other cases decided in England. Possibly the fact that the employer had not ordered tenders to be invited had a good deal to say to the result.

Another interesting point is that where the contractor abandons his contract, he cannot sue for the value of the work done either on the contract or upon a *quantum meruit*, there being no evidence of any fresh agreement to pay for the work on that basis.

Where a builder had to erect a number of houses within six months, there was a delay of two weeks in getting possession of the site, to which he agreed. Subsequently, however, he only got possession of the site in

* "Building Cases." Being a Digest of Reported Decisions affecting Architects, Surveyors, Builders, and Building Owners. By F. St. John Morrow, I.L.D. (Dub.) of Inner Temple and South Eastern Circuit. London: Butterworth and Co., 11 and 12 Bell Yard, Temple Bar.

bits, the last not until five months after the contract was signed. In an action for damages by the builder for delay, he claimed that the contract implied he was to get possession at once. The judge found for the defendant, but the Court of Appeal reversed this, and held that the fact of the builder consenting to a short delay altered the condition to one of getting possession within a *reasonable* time, and that possession had *not* been given within a reasonable time, and the builder was, therefore, entitled to damages. This is only common-sense.

COMMENTS.

Appointments of Architects under the Labourers Acts.

In our last issue we published a paragraph under the heading "The Schoolmaster Abroad," which contained an extract from the Sligo papers reporting certain proceedings of the Dromore West Rural District Council in connection with the appointment of an architect under the Act. We have since received a communication from Mr. P. Healy, Templeboy, Sligo, who was appointed to the office in question. He complains that our comment is calculated to do him injury, and states that he is a fully qualified man, "that he was unanimously appointed under the Dromore West Rural District Council over six years ago, the Council being well aware of his competency for the position, and the Local Government Board was thoroughly satisfied with his certificates and testimonials, and that he has since given thorough satisfaction to the District Council and the L.G.B. engineers," and he encloses us a drawing of the cottages already built under his supervision in the district.

We may point out that our comment was directed, not against Mr. Healy personally, but against a system, and that we complained of the Local Government Board's letter because it was limited to a question of time rather than qualification.

The Sanitary Congress.

The Congress of the Royal Sanitary Institute met in Dublin the week before last. A large gathering assembled at the opening luncheon in the Exhibition. Mr. Herbert Searles-Wood, F.R.I.B.A., presided. On the same evening (Tuesday) a reception took place in Trinity College. Sir Charles Cameron, C.B., delivered the inaugural address, and on Wednesday the Congress began its active work with a series of papers, including "The Housing of the Working Classes in Town and Country," by Mr. P. C. Cowan, published elsewhere in our columns, and a paper by Mr. W. K. Parry, entitled, "Could the existing Statutory and Departmental Requirements as to Sewage Disposal be relaxed in certain cases with advantage to the community?" also published in this issue.

The former paper (Mr. Cowan's) elicited a denunciation of the whole principle of the Labourers' Acts, on the part of Mr. Ralph Dagg, Clerk of the Baltinglass District Council, in the best style of the now somewhat obsolete "Manchester School" of political economy. Mr. Cowan's paper gave some useful information, but Mr. Dagg's retort, although it evidently carried the sympathy of the meeting, conveyed no new facts or features; in any event, it is rather late in the day to quarrel with legislation designed to keep the rural labouring population on the land.

Mr. W. K. Parry's paper advocated relaxation of existing rules as to the purification and disposal of sewage. It is difficult to understand why a sanitary authority, having gone so far as to promote carrying into effect a scheme, should hesitate to effect the final step in purification, which only represents a fraction of the whole. The advantage of any change in the existing restrictions, therefore, seems problematical.

Other papers, dealing with matters not directly pertaining to engineering or building, were read by Professor McWeeney, Sir John Moore, and Dr. Samuel

Rideal. Professor Rideal's paper, and also Sir John Moore's, on "The Climatology of Ireland in relation to Public Health," were very interesting, as was also Dr. Rideal's on "Disinfection."

On Wednesday a visit to Guinness's Brewery was arranged, and proved to be most interesting. On Thursday afternoon their Excellencies the Lord Lieutenant and the Countess of Aberdeen entertained the members of the Congress at a garden party at the Vice-Regal Lodge, while in the evening the Lord Mayor gave a smoking concert.

On Friday afternoon the members visited the Dublin Main Drainage Works, where they were received by Mr. George Chatterton, Consulting Engineer; Messrs. M. J. Buckley, and J. G. O'Sullivan, Assistant Engineers, of the Dublin Corporation; and Mr. I. J. Rice, Law Agent to the Corporation, who were most indefatigable in explaining details to the visitors.

As our readers know, the Dublin Sewage Works consist of a chemical precipitation plant, having a pumping and screening plant. The liming plant at present used is only a temporary arrangement. The entire system was explained by Mr. Chatterton, who was very kind in elucidating every detail. The system seems to be most effective and complete, and there is little or no offensive smell apparent. The only weak point in the scheme that struck us appeared to be the arrangements for screening at pumping station. Here the screens are raised *by hand*, and cleaned and scraped by hand, and from thence carted away. This seems to us to be a most primitive and unsatisfactory arrangement.

As an example generally, however, of a precipitation scheme on a very large scale, the Dublin Corporation Works must be considered as most satisfactory. The whole tendency of modern sewage treatment is, of course, altogether away from mechanical or chemical treatment, and in favour of bacterial methods, but it is open to question, whether in this particular case such treatment would have been advisable. Filtration or irrigation would, of course, be impossible, as there is no suitable area of land available, and the unfiltered effluent from bacterial tanks is, under certain conditions (as, for instance, in dealing with a vast volume of sewage, which may have to be stored), liable to be as offensive, or even more offensive, than chemically-treated sewage. The circumstances of Dublin sewage are somewhat exceptional.

The effluent yielded is very satisfactory, though foul-smelling, for a single treatment, and at the outfall there is no very great pollution.

The sludge is collected in channels from the tanks, and pumped into a sludge vessel, and conveyed out to sea.

The Institute and the Cork Sanitorium Competition.

In this issue we publish a letter from Mr. Webb, Hon. Secretary of the Royal Institute of the Architects of Ireland, complaining of our having described the action of the Institute as "belated." Now, only a few days ago, a Southern architect, whom we met recently, commented upon the Institute's action, which he described as "tardy." He said that he felt a grievance, because he had gone to considerable trouble, and had the problem to a great extent worked out in his mind, but as a loyal member of the Institute, he would refrain from competing, with the result that in all probability a non-member or an English architect will secure the commission, a forecast not at all improbable, as since our last issue the names of the competitors have been made public (which is distinctly improper), and there is only one Irish architect amongst them. It is further announced that a member of the Council of the Royal Institute of Architects has been appointed as assessor, which is not consistent with the Council's action in condemning the competition.

As to the advertisement which appeared in our columns, these announcements frequently reach us quite late—indeed, sometimes too late to be inserted, or else out of date.

LAW CASES.

ARBITRATION AWARD DISPUTED.

Builder Getting Twice as Much as he Claimed.

In King's Bench Division, before Mr. Justice Johnson, Mr. Justice Boyd, and Mr. Justice Wright, an arbitration matter with respect to certain additions to and alterations in the Catholic Church of St. Gabriel's, Aughrim Street, came on for argument. The contract for the work was given in 1902 by the Very Rev. Canon Burke, P.P., to Mr. James Donovan, builder and contractor, of Harcourt Street, Dublin. The amount of the contract was £4,950, and among the terms was one that the amount of the extras included in the contract should be measured up and priced; as also the amount of the omissions. The work had been duly measured up and priced at completion, and certified for by the architect, whose final certificate was disputed by the contractor. There was a clause in the contract specifying what were extras and what were omissions. The matter had been referred to arbitration, and the award had been set aside. The umpire had made a second award, and an application was now made on behalf of Canon Burke and the architect to have this award set aside on a variety of grounds, it being alleged that the second award was bigger and more confusing than the first.

One of the grounds on which it was sought to have the award set aside was that the umpire found due to Mr. James Donovan, the builder, twice as much as he claimed himself. The architect was Mr. R. M. Butler. In the arbitration he appointed Mr. Anthony Scott, and Mr. Donovan appointed Sir George Moyers, while the two arbitrators selected Mr. Richard Caulfeild Orpen as the umpire. It was contended that the question of what were extras and what were omissions was not left to arbitration at all, but to the decision of the architect; and it was alleged that the umpire's award was made in excess of jurisdiction; that it was ambiguous and indefinite, and in the alternative that it incorporated an award which had been set aside by the Court; and that it did not enable the architect to make up a final certificate, which, under the contract, it was necessary he should do, before the contractor could claim any payment.

Mr. O'Brien, on behalf of the contractor, dealing with the alleged ground that the contractor claimed double the amount due to him, said that it was not claimed, as had been represented. The umpire found by the award that the balance due to Mr. Donovan on the contract price was to be added to the balance due for extras and variations. These sums together made double the amount that had been claimed by Mr. Donovan in respect of the extras and variations.

Mr. John Bartley, with whom was Mr. Herbert Wilson, K.C. (instructed by Mr. W. J. Morris), said that this was only a matter of inference; that the award was manifestly bad on its face, and should be set aside; that it dealt with matters not referred to arbitration and matters which the architect alone was competent to decide.

The sole matters referred to arbitration were:—The items in the surveyor's account of the extras and omissions, challenged by the contractor in his objection of 18th July, 1905; he could not claim items not included in that account, nor dispute the architect's ruling as to what were or were not extras, in fact; neither could he come in now and raise fresh matter. The arbitrators' and umpires' jurisdiction was strictly limited. They had nothing to do with items that the architect had ruled were not extras at all, and they had nothing to say to the contract balance, which was not the subject of dispute at all. The only functions they had were to determine the true measurement and price of the admitted extras and omissions in the surveyor's bill. The award was bad, and as it was beyond the power of the Court to sustain it, it must be set aside.

Mr. Bartley, at the conclusion of his argument, said that Canon Burke had made a most fair offer, which Mr. Donovan had refused.

Mr. Justice Johnson and Mr. Justice Boyd declared that this was true. Mr. Justice Wright concurred. The Court reserved judgment for the purpose of giving the contractor an opportunity of reconsidering his position, and the offer made to him on behalf of Canon Burke. Mr. Justice Wright observed that the contract showed clearly that the architect was the judge of what were extras and what were not.

On 28th ult. the Court gave judgment. It was held unanimously (1) that the only matters referred to arbitration were the items in the surveyor's account, challenged by the builder in his objections of 18th July, 1905; (2) the award was set aside; (3) the matter was referred back to the umpire to make an award strictly limited as to the matters set forth; (4) the Court ordered him to review his decision, giving costs against Canon Burke.

IMPORTS.

Port of Dublin.

June 26th.—Per Stag, from Irvine, 121 tons bricks, etc., Brooks, Thomas and Co., Ltd. Per Lady Hudson-Kinahan, from London, 500 sacks cement, T. Dockrell, Sons and Co., Ltd. Per Lady Roberts, from London, 999 sacks cement, T. Dockrell, Sons and Co., Ltd.

June 29th.—Per Loustic, from St. Malo, 173 tons slates in bulk, T. Archer.

July 1st.—Per City of Cadiz, from Hamburg, 5,670 casks, 30 casks asphalt, 16 rolls roofing, to order. Per Lord Iveagh, from Baltimore, 52 tons roofing slates, 3,498 pieces oak lumber, 713 pieces, 98 bundles poplar lumber, to order. Per Isabella, from Connah's Quay, 150 tons bricks, etc., T. Archer. Per C. S. Parnell, from Connah's Quay, 16 tons fireclays, J. C. Parkes and Co.; 120 tons fireclays, Brooks, Thomas and Co., Ltd. Per Hurricane, from London, 290 tons cement, E. O'Meara.

July 2nd.—Per Rathlin Head, from New Orleans, 1,948 bundles, 2,691 pieces gum lumber, 2,898 pieces oak lumber, 3,600 pieces whitewood lumber, 398 bundles, 424 pieces satin walnut, 83 hickory logs, 2,748 pieces pine lumber, to order. Per Norderney, from Archangel, 23,696 pieces deals, W. and L. Crowe, Ltd. Per St. Kevin, from Rochester, 550 tons cement, T. and C. Martin, Ltd. Per Dinorwic, from Middlesboro', 270 tons cement, J. and P. Corry, Ltd.

July 3rd.—Per Volunteer, from Portmadoc, 113 tons slates, T. Archer.

July 4th.—Per Munter, from Christiania, 110,624 pieces floorings and scantlings, 500 pieces poles, W. and L. Crowe, Ltd. Per Winga, from Goteborg, 5,950 bundles laths, 230 pieces doors, to order. Per Lady Martin, from London, 500 sacks cement, to order.

July 6th.—Per Two Brothers, from Cowes, 120 tons cement, W. S. Chadwick.

YORK BUILDERS VISIT DUBLIN.

The members of the York Association elected to visit the Dublin Exhibition for their annual outing, and from the secretary's report the party enjoyed the outing immensely. Sea-legs appear to have been at a premium, but apart from that the only thing to be regretted (according to the capable scribe who gives us the report) was the fact that Dublin's pretty girls, of whom they had read so much, were like the York builders having a day off, as they were conspicuous by their absence.—*Master Builders' Association Journal*.

Mr. John G. Ames, who was for many years connected with Messrs. R. W. Blackwell and Co., engineers and contractors, of City Road, E.C., as the manager of their Manchester Branch, has severed his connection with that firm, and, after visiting the United States, has been appointed manager of the Barrett Manufacturing Co., Spencer House, South Place, Finsbury Pavement, E.C.

A perfectly sanitary flooring has been long looked for, and we have lately seen what we consider one of the very best that can be put down, in the "Challenge" flooring. This material is laid in a plastic state, in all colours, and is laid on wood or concrete in thickness of about half-an-inch. One of its principal features—and a very important one, from a sanitary point of view—is that it is laid without a joint or seam, and, if required, can form a cove skirting, carrying the same material up the walls, thus preventing any moisture from getting at the sub-floor, making it perfectly sanitary, and at the same time vermin-proof. A few other special points that cannot fail to commend themselves to architects and builders is that this flooring is fireproof, warm, and noiseless to the tread, and does not crack or dust up. We understand that the firm guarantee their flooring for a term of years, and are always prepared to submit samples and designs of any colour or border work that is required. The head offices and works, at 5 Marybone, Liverpool, are equipped with the most modern machinery, and they have large contracts on hand for hospitals, asylums, schools, warehouses, motor works and garage, hotels, billiard saloons, etc. We have seen several testimonials from leading architects who have used the "Challenge" flooring and there is every reason to anticipate a very wide scope for this class of flooring, which has long been required in the building trade. The makers are the Challenge Flooring, Ltd., 5 Marybone, Liverpool.

OBITUARY.

Death of Mr. James Donovan.

We have to announce the death of Mr. James Donovan, which took place on Sunday, 7th inst., at his residence, Leinster Lodge, Rathmines, after a very few days' illness. Mr. Donovan's death breaks a link with the past, as he was one of the few remaining builders of the old Dublin School—he was, in fact, we believe we are correct in saying, the oldest builder in Dublin, having been for close on half a century connected with the trade. He had a very extensive connection, and, until a few years ago, carried on business at 58 Harcourt Street, removing later on to premises in Lower Hatch Street. Recently his son, Mr. Edward Donovan, became a partner, and the firm became known as "James Donovan and Son." During his long career, Mr. Donovan executed an exceptionally large number of building works in and near Dublin and in the provinces; amongst these may be mentioned at random—very extensive additions to the District Lunatic Asylum, Castlebar; important works at the South Dublin Union Workhouse, including nuns' residence and Roman Catholic Chapel; new side aisles, St. Saviour's Church, Lower Dominick Street, for the Dominican Order; Messrs. MacKenzie's premises, Brunswick Street; residence for Mr. G. C. Ashlin, at Kilinney; extensive additions to the Church of the Holy Family, Dublin; the Electrical Transformer Stations and the Central Fire Brigade Stations, Great Brunswick Street, Dublin, both for the Corporation of Dublin.

Mr. Donovan was a man of strong and tenacious character, and, although not a very old man, he possessed an experience of the building trade probably unequalled in Dublin.

The Late Mr. Robert Fogerty, Architect, C.E.

It is with deep regret we have to announce the death, on the 29th ultimo, of Mr. Robert Fogerty, Architect and C.E., of Limerick, in his 64th year.

The name of Fogerty has been long and honourably connected with the profession in the South of Ireland. His father, the late Mr. Joseph Fogerty, united the practice of architecture with that of building—as did Richard Brash, of Cork, and other builders of note in the early portion of the last century—and carried on an extensive and lucrative practice. Mr. Robert Fogerty commenced his studies at the Queen's College, Cork, in the sixties, and after passing through the Engineering School, he joined the staff of the late Mr. Fowler, the eminent engineer, at that time engaged in the construction of the Severn Valley, and other important English railways. On the staff, at the same time, was his cousin, the late Mr. Joseph Fogerty, whose scheme was at one time accepted in competition for the proposed elevated railway in Vienna; he was also the author of several works of fiction. One of his novels, "Lauterdale," is reminiscent of the early days of railway construction in England and the labour troubles in this Severn Valley district. From Fowler's Mr. Fogerty left England to take up an appointment in the Department of Public Works, India, and was engaged on several important engineering works in the Madras Presidency. He returned home in the seventies, and entered into partnership with his father in Limerick, and since then was identified with the execution of many important works of a varied character in the city and surrounding district.

About 1878 he was appointed Diocesan Architect for the Representative Church Body in the Munster Dioceses (except Killaloe). In this capacity he was continually brought in touch with many of the contractors and builders of the South of Ireland, by whom he was greatly respected for his upright manner and sound, practical views on most questions.

In 1887 he was associated with the late Mr. R. J. Cruise, C.E., and Mr. J. J. Browne, Architect, in promoting and carrying out a scheme for the new water supply for Limerick City, which was completed soon after. The latest works of importance—on which he was engaged up to his last illness—were some extensive improvements at Adare for the Earl of Dunraven, and a large business warehouse in Kilkenny. His son, Mr. George Fogerty, we understand, intends to continue the office in Limerick, and will, we hope, maintain the traditions of the firm.

Outside his profession, Mr. Robert Fogerty was very popular. In the cause of charity, or of sport, his professional services were always at the command of his fellow-citizens, irrespective of creed or class. When some monster

fête was to be planned, he entered into the spirit of it heart and soul, and never stayed until he secured its success.

He always hated sham, either in architecture or in social life, and, in his own peculiar way, was never slow to show it; but for solid worth he had a true regard. Inflexible of will, it required the influence of true friendship to develop the best qualities of his head and heart, and it is only those who are left to regret the severance of that friendship that know how much there was in his kindly nature to remember and esteem.

To his family we tender our respectful sympathy.

CORRESPONDENCE.

THE R.I.A.I. AND COMPETITIONS.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

DEAR SIR,—In your issue of the 29th June you speak of the action of the Institute with regard to the competition promoted by the County Cork Joint Hospital Board as being "a trifle belated." As similar comments have been published on former occasions, I think it my duty to point out that in this case not only had the Council been summoned and had met, but that a letter had been written and despatched to the Secretary of the Board the day before the advertisement of the competition appeared in your own paper.—I am, sir, yours faithfully,

JAMES H. WEBB, Hon. Sec.

The Royal Institute of the Architects of Ireland,
20 Lincoln Place, Dublin,
3rd July, 1907.

THE HEATING OF SCHOOLS.

Captain Craig's Bill for the heating of National Schools provides that managers might take steps to provide for proper heating, half the cost to be defrayed by the Commissioners and the other half by the School Attendance Committee. The Bill is backed by Colonel M'Calmont and Messrs. Lonsdale, Corbett, Craig, Barrie, and Moore, and, if passed, will come into force on 1st November.

REVIEW.

"Carpenter and Builder" Technical Books.

Messrs. John Dicks, Limited, of Effingham House, Arundel Street, Strand, London, W.C., issue a series of cheap technical books, and we have been favoured with certain of these for our perusal. These handbooks are written in plain and thoroughly practical language, and describe in the simplest way the everyday work of the trade. These books should prove very useful to the apprentice, the artisan, and the contractor. The price is 6d. each, which brings them within the reach of everyone. Messrs. Dicks are pioneers of popular literature on technical subjects. This firm have just issued, with numerous illustrations, the seventeenth book of the series, under the title of "Surveying."

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Armagh.—The Banbridge Board of Guardians have recommended the enlargement of part of the Union buildings in order to provide suitable office accommodation for the Clerk and a strong room for the Council's documents.

Belfast.—The tender of Messrs. J. and W. Stewart has been accepted for additions to Gas Stove Warehouse, Ormeau Road and Bankmore Street, for the Belfast Corporation.

The Wellington Hall of the Y.M.C.A., Belfast, has been greatly enriched by the erection of two stained glass memorial windows. One has been placed there to the memory of the late Mr. A. W. Vance, so well known in Belfast, and one to the memory of the founder of the Young Men's Christian Associations, Sir George Williams. The first was unveiled on Sunday, 16th June, by Lady Whitla, and the other on Wednesday, the 20th June, by the Right Hon. Lord Kinnaird. They are both similar in design and of Renaissance character. In the centre of each are life-like portraits of the deceased, surrounded by architectural treatment, below which are cartouches with the dedicatory inscriptions. In the Sir George Williams Window is a similar cartouche, with an extract from his last public speech in Paris, viz.:—"My last legacy to the world is the Y.M.C.A." The Vance Window has resting upon the canopy a group of musical instruments, emblematic of the gift of music possessed by the deceased. The inscriptions read respectively:—"Erected to the memory of A. W. Vance, an active Y.M.C.A. worker and Christian philanthropist, who, like his Master, went about doing good," and "To the memory of Sir George Williams, founder of the Young Men's Christian Association. Born, 1821, died 1905." Rich borders surround the windows, which sparkle with rubies, blues and gold stains. The harmonious blending of the glasses, with their rich and varied colouring, the careful drawing and freedom of treatment are at once apparent, and have all combined to produce works of art. The work was entrusted to Messrs. Campbell Brothers, Belfast, and carried out in their Studios, 19, 21, and 21 Franklin Street.

Tenders are invited for the erection and completion of a new factory, export packing stores, and dining hall for workers for the Belfast Mineral Water Co., Ltd., York Road. Quantities have been prepared by Mr. Acheson Ferguson, 2 Wellington Place, Belfast. Plans and specification by Mr. W. J. Moore, 30 Royal Avenue, Belfast.

Tenders are invited for re-building four new shops in the Castlereagh Road, the property of John Hollywoo', Esq., P. Plans and specification have been prepared by Mr. E. J. Byrne, Waring Street, Belfast.

Mr. W. H. Thorneycroft, R.A., has been instructed to proceed with the memorial statue (in bronze) to the late Right Honorable Sir Daniel Dixon, Bart., which is to be situated outside the new City Hall. Among Mr. Thorneycroft's works are statues to Queen Victoria, Oliver Cromwell, John Bright, Lord Granville, General Gordon, W. E. Gladstone, etc.

Baths and Lodginghouse.—The sub-committee having considered the matter of acquiring the adjoining vacant ground at Carrick House, it was resolved:—"That the city surveyor be instructed to prepare a plan of the ground and that the Town Clerk inquire from the owners the terms on which they are prepared to dispose of same." The committee having considered at length the preliminary steps to be taken in connection with the erection of a lodginghouse for Ballymacarrett, it was resolved:—"That before proceeding to acquire a site, it is necessary to procure information as to design, construction, and equipment of such buildings, and accordingly a deputation of three or four members, with the assistant surveyor and clerk, be appointed to visit the most recently erected lodginghouses in cross-Channel cities, to enable the committee to select such a site as will meet the requirements of the house the committee may decide to erect." Moved by Alderman Doran, seconded by Alderman Sir Otto Jaffé, and resolved:—"That in view of the evidence given at the Health Commission touching the urgent need for suitable accommodation in lodginghouses for women throughout

the city, it is desirable that steps be taken with a view to such accommodation being provided, and that the deputation to be appointed in connection with the lodginghouse for Ballymacarrett district to visit cross-Channel cities be requested to obtain information on this matter and report."

The following is the award of Mr. Maurice B. Adams, F.R.I.B.A., assessor in the competition for houses erected on the Garden Estate, 7 Cliftonville, Belfast:—Class I.—1st, Mr. Samuel Ewing (architect, Mr. W. Martin Ashmore); 2nd, Mr. William Kerr (architect, Mr. W. J. W. Roome, M.R.I.A.I.)—this house, however, was disqualified on account of excess of cost—2nd prize, therefore, awarded to Mr. James Kidd (architect, Mr. J. St. J. Phillips, A.R.I.B.A.); 3rd, Messrs. McKenzie and Risk (architect, Mr. James Risk). Class II.—1st, Mr. Samuel Ewing (architect, Mr. George Mitchell); 2nd, Mr. James Kidd (architect, Mr. J. St. J. Phillips, A.R.I.B.A.); 3rd, Mr. James H. Barton. In Class III. it was mutually agreed that no houses should be erected at present, and the supplementary competition for furnishing was not carried out.

Ballybay (Co. Monaghan).—Messrs. Carson and Sons, merchants, Ballybay, are having a large building erected at the extreme end of Abbey Street, to be used as a steam bakery.

Bundoran.—Additions are about to be made to the Female Orphanage, Bundoran, according to plans of Mr. Thos. F. McNamara, 50 Dawson Street, Dublin. Mr. D. W. Morris, 68 Harcourt Street, has been appointed quantity surveyor, and tenders will shortly be invited.

Bawnboy (Co. Cavan).—Bawnboy (Co. Cavan) Rural Council has adopted an improvement scheme under the Labourers Acts, 1906. The Clerk estimated that they would require a loan of £20,936 to carry out the scheme for both cottages and allotments, which would be at the rate of £190 per house for 108 houses or cottages, which they proposed to build. The Council subsequently reduced the number of cottages from 108 to 49.

Carlow.—Sanction of Loans.—The Local Government Board have informed the Board of Guardians that they had recommended to the Commissioners of Public Works the loan of £2,650, sanctioned to the guardians for the purpose of providing a water supply and system of drainage to the workhouse. They also recommended a loan of £920 for the purpose of erecting a new fever pavilion, and extending other necessary works at the Bagenalstown Hospital.

Cork.—The Joint Hospital Board report seven architects are competing for the £100 prize offered for the best plan of sanatorium. These are—Mr. James F. McMullen, Cork; Mr. James E. Hellawell, Bishop-Auckland, Durham; Mr. J. Roseman-Burns, Dublin; Messrs. Wrench and Sons, Ipswich; Messrs. Houston and Houston, London; Mr. E. C. H. Maidman, Edinburgh; and Mr. H. W. Lockwood, Sheffield. Mr. Albert E. Murray, Dawson Street, Dublin, has been appointed assessor.

Tenders are invited for proposed additions and improvements at "Roseneath," Rushbrooke, and at Cottage, Ballynoe, for the Right Hon. the Lord Barrymore, according to plans prepared by Messrs. W. H. Hill and Son, Architects, 28 South Mall.

Clonmel.—The Clonmel No. 1 Rural District Council have made an improvement scheme in pursuance of the Labourers' (Ireland) Acts, 1883 to 1906. The estimated cost of the scheme is £14,400.

The Clonmel No. 2 Rural District Council have made an improvement scheme in pursuance of the Labourers' (Ireland) Acts, 1883 to 1906. The estimated cost of the scheme is £5,440.

Claremorris.—The high altar, the gift of the Venerable Archdeacon Kilkenny, D.D., P.P., V.G., has just been erected in Claremorris new church. It is from the design of Messrs. Doolin, Butler, and Donnelly, architects, Dublin, and has been constructed by Mr. Patrick Tomlin, of Grantham Street, Dublin.

Carrickmacross.—The Board of Guardians will, at their meeting on Thursday, 18th July, consider applications for the position of engineer from persons eligible under Article 50 (1) of the Labourers' (Ireland) Order, 1906.

Dublin.—Messrs. Eustace Bros. are about erecting new dry-cleaning and finishing rooms, at their works, Cork Street, in accordance with the specifications prepared by Mr. Henry J. Lundy, M.R.I.A.I. The bills of quantities were prepared by Mr. J. Graves Clayton, Nassau Street. Messrs. Alex. Hull and Co., Ringsend Road, have secured the contract.

The Pembroke Urban District Council invite tenders for the construction of concrete foundations and engine room, floor, etc., in connection with the proposed extensions of the

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generating plant at their electricity works at South Lotts Road. Tenders close to-day (Saturday) at noon.

Alterations and additions, including a new cut stone porch, are about to be carried out at Mercer's Hospital. Mr. A. E. Murray is the architect, and the quantities have been prepared by Messrs. Beckett and Medcalf, 10 Leinster Street. Tenders have been invited.

The Jesuit Fathers contemplate erecting a large additional wing to the House of Retreat, Milltown Park. The plans and specifications have been prepared by Mr. J. P. Wrenn, M.R.I.A.I., 16 Nassau Street, Dublin. Messrs. Mumby and O'Rourke, Dame Street, are the quantity surveyors, and the work will shortly be offered for tender.

Messrs. Collen Bros., East Wall, Dublin, are at present building a residence at Upper Glenageary for Mr. Clarke. The plans and specification are by Messrs. Wm. M. Mitchell and Sons, Stephen's Green, North, Dublin.

Mr Griffin, contractor, Blackrock, is finishing the erection of new schools at Blackrock, from the designs and specification of Messrs. W. H. Byrne and Son, 20 Suffolk Street, Dublin. Messrs. Helliwell and Co.'s patent glazing has been used in the roofing.

Mr. W. Callan, Leinster Street, Phibsborough, is at present building four semi-detached villas at Blackrock for Mr. McDermott, solicitor, 13 Nassau Street, Dublin.

Dundalk.—Tenders have been received for building villa residence at Dundalk for T. Callan Macardie. The architects are Messrs. Hague and MacNamara, 50 Dawson Street, Dublin.

Down.—The Committee of Management of the Down District Lunatic Asylum invite tenders to 19th July for the sewage purification works of above asylum, which is about to be constructed according to plans and specifications to be seen at the Asylum Office. Tenders to be lodged with the Resident Medical Superintendent.

Drumcollogher.—As will be seen from our advertising columns, tenders are invited for improvements to Drumcollogher Church. Mr. Bryan E. F. Sheehy, 57 George Street, Limerick, is the architect.

Killavullen (Co. Cork).—Tenders are invited before July 15th for the erection of National Schools, Killavullen, Co. Cork. D. J. Buckley, C.E., M.R.I.A.I., architect, 53 South Mall, Cork.

Kilmoyler.—The Kilmoyler Co-operative Agricultural and Dairy Society, Limited, have received tenders for the erection of a store at Kilmoyler.

Kingstown.—The hearing of the arbitration case between Lynch and Egan, contractors, and the Kingstown Urban District Council, in reference to the artisans' dwellings lately erected, has just concluded, and it is expected the award will shortly be published. Mr. W. Medcalf, 10 Nassau St., appeared for the Urban Council, and Mr. E. H. Tickell for the contractors. Sir Thos. Drew, R.H.A., acted as umpire.

Kilkenny.—Tenders will shortly be invited for Mr. T. M. Kelly's residence at Tullaroan. The plans and specifications are being prepared by Mr. James P. Wrenn, M.R.I.A.I., 16 Nassau Street, Dublin.

Lisburn.—The Lisburn Rural District Council will to-day consider tenders for building a bridge on the road from Ballinderry to Tunny in the townlands of Lurgill and Ballyvannon, at a cost not exceeding £250.

Tenders have been invited for the erection of the William Foote Memorial Schools, Seymour Street, Lisburn. Tenders will be received up to 22nd July by the Rev. A. Egan, Methodist Manse, Lisburn.

Limerick.—First prize has been awarded by the assessors, Mr. R. M. Butler, F.R.I.B.A., and Mr. P. J. Lynch, M.R.I.A., for the best design for the new Technical School Buildings, to Mr. W. P. Ryan, architect, Metal Exchange, Leadenhall Street, London, and second prize to Messrs. Kaye, Parry and Ross, Dublin. Seven other architects also competed.

The Theatre Royal has, it is again reported, been purchased by an influential syndicate at a cost of £4,000. The building—one of the oldest in Ireland—will be pulled down and a new and up-to-date theatre will be built on its site. The syndicate is reported to have a capital of £10,000.

Londonderry.—The Derry No. 2 Rural District Council are adopting a scheme for the erection of one hundred and seventy-seven labourers' cottages, at an estimated expenditure of £31,960.

Louth.—Tenders will shortly be invited for additions to St. Mary's College, Dundalk, for the Marist Fathers. The plans and specifications have been prepared by Mr. Thos. F. McNamara, 50 Dawson Street, Dublin, and quantities are being taken out by Mr. James Mackey, 58 Dame Street, Dublin.

Meath.—Additions and alterations are about to be carried out at the premises of the Northern Bank, Oldcastle, accord-

ing to plans and specifications which have been prepared by Mr. H. C. Parkinson, Armagh.

Moneyrea (Co. Down).—Tenders have been invited for the erection of the Richard Lytle Memorial School at Moneyrea, according to the plans of Messrs. Hobart and Heron, 120 Scottish Provident Buildings, Belfast.

Mullingar.—The contracts in connection with the New College, Mullingar, have been placed as follows:—The plumbing arrangements, Messrs. Baird, Ltd., Dublin; stables and ball-alleys, Mr. F. Gogarty, Drogheda; gate pillars and wing walls of Newry granite, Mr. James Wynne, Dundalk; wrought iron gates and railings, Messrs. James Farrell and Son, Navan. The work will be carried out under the supervision of Mr. Lucius O'Callaghan, M.R.I.A.I.

Naas.—The Board of Guardians will, on 17th July inst., consider tenders for painting, etc., the medical officers' residences at Blessington, Ciane, Newbridge, and Kildare.

Omagh.—The Omagh District Council have adopted representations for 275 new labourers' cottages.

Rockcorry.—The Cootehill Board of Guardians have decided to build a new dispensary and doctor's residence at the village of Rockcorry, Co. Monaghan.

Rushbrooke (Co. Cork).—Tenders are invited for proposed alterations and improvements at "Roseneath," Rushbrooke, Co. Cork, and at Cottage, Ballynoe, Co. Cork, for the Right Hon. Lord Barrymore. W. H. Hill and Son, 20 South Mall, Cork, are the architects.

Skibbereen.—Tenders are invited for the erection of a parochial hall in Skibbereen, according to the plans to be seen at the Rectory, and at the offices of the architects, Messrs. W. H. Hill and Son, 28 South Mall, Cork. Tenders to be delivered at the Rectory on or before the 18th inst., addressed to Rev. Canon Townsend.

Tullaroan.—Tenders are invited for the erection of a residence at Tullaroan, Co. Kilkenny. Stones and mortar are on the ground. Plans and details may be obtained from the architect, Mr. J. P. Wrenn, 16 Nassau Street, Dublin.

Thurles.—The Thurles Rural District Council have made an improvement scheme in pursuance of the Labourers' (Ireland) Acts, 1883 to 1906. The estimated cost of the scheme is £45,603.

The tender of Messrs. Leahy Brothers has been accepted for alterations and additions to St. Patrick's College.

Waterford.—The Local Government Board has approved of the appointment of Mr. W. E. Bowers as engineer to the Council under the new Labourers' Cottage Scheme.

Whitehead.—It is proposed to erect new church buildings at Whitehead in connection with the parish of Templecorran and Kilroot.

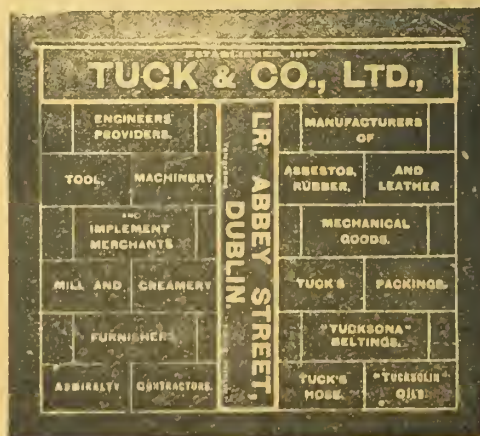
Youghal.—The Committee of Management will on Tuesday, 16th inst., appoint a clerk of works for the buildings at the Youghal Auxiliary Asylum.

TENDERS.

New Children's Infirmary, Lisburn Road, Belfast, for the Belfast Board of Guardians. Messrs. Young and MacKenzie, architects, Scottish Provident Buildings; quantities supplied by Messrs. McCarthy and Brookes.

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ENGINEERING SECTION.

THE ROYAL SANITARY INSTITUTE. CONGRESS IN DUBLIN.

The Congress of the Royal Sanitary Institute, which was being held in the Irish capital while we were at press with our last issue, is now a thing of the past. As far as numbers go, the meetings were successful, but some of the papers read, and the discussions in the Engineering and Architectural Section, with which our readers are chiefly concerned, scarcely reached the standard which might be expected. It is possible that local authorities are becoming satiated with the frequent congresses held in various parts of the United Kingdom, and when it is remembered that the Royal Institute of Public Health, a body with aims and objects similar to the Sanitary Institute, met but a few days subsequently in the Isle of Man, a reason for the lack of life, which was a noticeable feature of the proceedings in Dublin, becomes apparent.

In a word, the two congresses clashed, and, naturally, both suffered, and it would seem to be essential that such an event should not recur. If the two societies mutually agreed to hold their respective congresses in alternate years, the results would undoubtedly be beneficial to both and to the general public, as each would enjoy a proper period of rest from the labours attached to the arrangement of programmes and preparation of papers, and the issue of the more matured deliberations would be regarded with increased attention by those outside the circle of membership. Sanitary science is somewhat in danger of being smothered by the attentions of its friends, and it is to be feared that a reaction will set in, which would possibly be warmly welcomed by those authorities who find that their finances suffer severely in the endeavour to cope with the exacting requirements of the theorist on public health. Such a state of affairs would be undesirable, and it is a consummation devoutly to be wished, that the various institutes would profit by the signs of the times and the outspoken comments of the technical press throughout the kingdom.

To the reasons stated may also be attributed the somewhat attenuated programme of social events which are the usual concomitants of these meetings. It was scarcely worth while to mention, for instance, on the official programme that delegates might inspect the Science and Art Museum, the National Library, the old Irish Houses of Parliament, and the Royal Botanic Gardens. These, being open to the general public, can only have been included in a desire to pad the programme, and do not add to the dignity of the proceedings. However, their Excellencies upheld the national reputation for hospitality by receiving the members at a garden party at the Viceregal Lodges—an example worthily followed by the Lord Mayor of Dublin, who gave a smoking concert at the Mansion House. Both of these functions were largely attended, and were most enjoyable.

The official proceedings opened with a luncheon at the International Exhibition on Tuesday, June 25th, and those members who had recovered from the severe ordeal of a cross-Channel passage in the teeth of a full gale, were doubtless glad of an opportunity of thus early becoming acquainted with the monument of Irish enterprise at Herbert Park. Mr. H. D. Searles Wood, Chairman of Council, presided at the luncheon, and after the usual loyal toasts had been honoured, Col. J. Lane Trotter, R.A.M.C., proposed the health of the City of Dublin, which was responded to by Sir Charles Cameron, C.B.

After an inspection of the buildings and grounds, the members returned to town, and the open business was held in the evening at the Examination Hall, Trinity College. After a few words of welcome by the Provost, who presided in the absence of His Excellency the Lord Lieutenant, Sir Charles Cameron, C.B., M.D., read the inaugural address, which we report in full in this issue.

The proceedings of Congress terminated with votes of thanks to the various bodies and individuals who had assisted to make the conference a success, and the members separated, many to their homes, and others armed with umbrellas and mackintoshes to visit some of the tourist centres in the South of Ireland.

INAUGURAL ADDRESS BY SIR CHARLES CAMERON, C.B.

Sanitation has Reduced the Death-rate.

In the very early part of the last century there were no medical officers of health, there were practically no sanitary inspectors. The laws relating to public hygiene might almost be expressed by the word *nil*. The water supplies to towns were almost wholly obtained from local wells, which were rarely quite pure. The main drainage of towns was almost unknown. The water-carriage system of filth removal had not commenced. Disinfection was rarely practised, and never in a really efficient manner. Can we wonder, then, that the urban mortality was very high and greatly in excess of the death-rate in rural districts!

Population in the Middle Ages.

During that long and dreary period, aptly termed the Dark Ages, the population of these countries, and of most of Europe, scarcely increased. This slow increase of population was mainly due to the insanitary conditions under which the people lived. Our information as to the numbers of the population of Europe in the Middle Ages is not accurate, but it was certainly small as compared with the immense population of the present time. I am inclined to think that after the collapse of the Roman Empire, and its invasion by the barbarian hordes from the north and east, population rather declined than increased. It seems certain, however, that any increase must have been small during the long ages between the fall of the great Empire and the 18th century. Wars, plagues, insanitary conditions were the causes which prevented the natural increase of the population. According to Dr. Malthus, population unrestrained should double itself in 25 years; but even assuming that it would require a century to double its numbers, at that rate and taking account of emigration to other parts of the world, the present population of Europe should be much greater than what it is. As an illustration of the slow increase of population until comparatively recent times, I may mention that in the reign of Queen Elizabeth the population of England and Wales was estimated at five millions. A century later the estimated population was only one-and-a-half millions greater. The estimated population in 1665 was 6,450,000; 136 years (1801) later the population amounted to 8,892,536. One author has shown that probably the population of England did not increase 30 per cent. in 700 years.

Broadly speaking, the great increase of population in England and Wales commenced early in the 19th century. What a contrast, is there not, in the census figures for 1801 and those for 1901! Population in the former year, 8,892,536; in the latter, 32,527,843. In a century the population increased 23,435,307, and was nearly quadrupled. Since 1901 this great increase is maintained, the estimated population in the middle of 1907 being 34,945,600. On the other hand, the population of Ireland is now 1½ millions less than it was in 1801. This great reduction of population is due to emigration and to other causes which I cannot discuss in this address.

Although in the 19th century there was this remarkable increase of population, yet emigration greatly increased, and was not to the same extent compensated for by immigration.

From the Bills of Mortality in the City of London, which certainly did not exaggerate the number of deaths, it appears that the death-rate in the City during the period 1728 to 1780 was in the ratio of about 50 persons per 1,000 of the population. In 1906 the death-rate was 15.11 per 1,000, or corrected for age and sex distribution, 15.88.

Dublin Death-rate, Seventeenth Century.

Sir William Petty has shewn that the death in Dublin in the 17th century exceeded the births by three-fourths.

In Manchester the mean death-rate during the decennial period, 1861-70, was 35.38 for males, and 36.36 for females. In 1906 the corrected death-rate was 21.37.

The mean annual death-rate in Liverpool in the decade ending in 1875 was 31.3 per 1,000. In 1906 the crude rate was 20.64, and the corrected rate 22.15.

The great differences between the urban and rural death-rates, which formerly were so striking, have been greatly less-

sened. This is all the more remarkable as density of population has usually been regarded as a factor in producing a high death-rate. Many years ago Sir William Gairdner, of Glasgow, pointed out that whilst the death-rate in England, as a whole, was 15 per 1,000 persons living, it rose as the density of population increased until it became 27 and upwards when the density was 2,900 per square mile. This fact shows that at the time the observation was made (which was when Glasgow's death-rate was 30 per 1,000) there were insanitary conditions causing disease and decreasing the normal duration of human life. Long ago, the mean expectation of life in those who lived all their life in the country was probably twice that of the dwellers in the towns; but coming to the period of correct registration of vital statistics we find that even in recent years the difference was very great.

In the decade ended in 1860, the urban death-rate was 24.7 per 1,000, and the rural rate 19.9, a difference of 4.8. In 1906, the urban corrected rate was 16.88, and the rural rate 14.42, a difference of 2.46. There was in 1906 only one death per 1,000 of the population of London higher than in the country districts.

Sanitary State of Dublin.

An address to a Sanitary Conference in Dublin should include some account of the state of public health in it, and of its public health organisation and vital statistics. I shall make this account a brief one. The City of Dublin contains a population estimated in this year to be 300,691. Together with four townships it constitutes the Dublin metropolitan registration area of the Registrar-General, which contains a population of 390,691. In comparing the vital statistics of Dublin with cities like London, those of the city alone are often taken, not those of the whole registration area, which really include the suburbs of the city.

Sanitary Staff Forty Years Ago.

Forty years ago the sanitary staff of the Corporation of Dublin consisted of the whole of one man (an inspector of nuisances) and a small part of another man (the secretary of the Markets' Committee). Now the staff includes a medical superintendent officer of health, who is also executive sanitary officer and public analyst; 20 *ex-officio* officers of health, who are the Poor Law medical officers; an assistant executive sanitary officer; a veterinary surgeon; 2 building surveyors; a superintendent of sanitary sub-officers (sanitary inspectors); 32 sanitary sub-officers; 6 lady sanitary sub-officers; 2 inspectors (one a lady) under the provisions of the Shop Hours and Shop Assistants' Seats Act; 3 inspectors of food under the Public Health Acts; 2 inspectors of food under the Sale of Food and Drugs and Margarine Acts; an inspector of slaughter-houses; caretaker of refuge for persons whose dwellings are being disinfected and persons who have been in contact with cases of infectious disease; 12 clerks; caretaker of smallpox hospital; 6 labourers; a superintendent of disinfecting department and a staff of 23 inspectors, ambulance men, drivers, whitewashers, and charwomen. The total number of persons employed in the Public Health Department, and including the superintendent and staff of the Corporation baths and house, is 112.

This large staff has for main objects the betterment of the sanitary condition of the city. Perhaps in no other city in the United Kingdom is the work of the sanitary department more extensive and difficult. A hundred years ago Dublin was the largest town in the United Kingdom outside London; now it is exceeded in population by six cities, which, during the hundred years, have grown from moderate size to enormous proportions. They are comparatively new as regards their houses, but the Dublin of 1907 is much the same as regards its residential houses as it was in 1807, except that the houses formerly occupied by single families are now largely tenement houses, and are so old that it is difficult to keep them in repair. In these houses 37 out of every 100 families in Dublin occupy each a single room. In many English towns not 10 per cent. of the families are occupiers of each of a single room. The poverty of a large proportion of the people is shown by the fact that whilst about 16 or 18 per cent. of deaths in English towns occur in workhouses, hospitals, and other institutions, more than 40 per cent. of the deaths in the city of Dublin take place in these institutions. One-third of the inhabitants of Dublin are not natives. Many of the persons who have come to Dublin from the country have not added to its wealth or health. The Dublin hospitals are largely supplied with country patients.

Dublin and other Cities.

It is not fair to compare a city which, as in the case of Dublin, contains an abnormally large poor population, with cities like London, in which there are higher standards of wealth and comfort. Dr. Sergeant, in a paper published in the *Journal of the London Statistical Society*, June, 1864, contended that in comparing the death-rates of London and

Birmingham an allowance of 1.5 should be made in favour of Birmingham, on account of the comparatively small proportion of the affluent classes who inhabit it. A greater allowance should be made in favour of Dublin when comparing its vital statistics with those of London. Amongst the rich everywhere there is a high standard of health; amongst the poor in every town there is a lower standard. Although Glasgow has been brought, on the whole, by sanitary measures into a very healthy city, yet Dr. Chalmers, medical officer of health for that city, has shewn that in some of its streets, occupied by very poor people, the death-rate has exceeded 40 per 1,000.

Public Health Expenditure.

In 1906 the expenditure of the Public Health Committee amounted to £15,593, and the revenue, including the liberal contribution of £2,091 from the Local Government Board, was £4,339 9s. 4d. A large proportion of the expenditure is in relation to the maintenance of fever patients, payment for notifications of infectious diseases, fees to the registrars of Cemetery Boards, working the Act relating to the street trading of children, contributions towards the maintenance of open spaces, proportion of law agents and accountants' expenses, expenses in connection with the Contagious Diseases (Animals) Acts, and in providing dwellings for the working classes. The Corporation have expended £485,000 in clearing unhealthy areas, and a very large sum in the erection of baths, wash-houses, refuse destructors, abattoirs, etc.

The Corporation of Dublin have expended £345,000 in providing dwellings for the working classes, and a large sum in the erection of baths and wash-houses, abattoirs, and a disinfecting house refuge for persons whose residences are undergoing disinfection, or who have been in contact with cases of infectious disease. A sum of considerably over half a million has been expended in main drainage works, designed to free the River Liffey from pollution, and to prevent the blocking of the street sewers. They maintain, as I have shewn, a large sanitary staff. Have there been any substantial results to justify so great an expenditure? There have been good results; very good as regards the lessening of zymotic diseases, but it is somewhat disappointing that the general death-rate has not been reduced to a greater extent. As I have already said, this may be owing to so large a proportion of the population coming under the heading of the very poor. Still, I think the following statistics will show that the money spent upon improved sanitation has produced a good result:—

Improved Health.

	General Death rate, Dublin City, Dublin Registration Area.		Zymotic Death rate, Dublin City, Dublin Registration Area.	
Mean of ten years—				
Period 1879 to 1888	31.5	28.6	4.2	3.8
Mean of ten years—				
Period 1889 to 1898	28.9	26.0	2.9	2.5
Mean of Five Years—				
Period 1899 to 1903	28.1	25.7	2.9	2.5
Mean of Three Years—				
Period 1904 to 1906	23.7	22.3	2.0	1.8

In 1906 the zymotic death-rate in Dublin was below that of the 67 largest English towns, and even below that of London.

It has been shewn that before the Registration of Births and Deaths Act of 1890, 11 per cent. of the deaths were not registered, the recorded deaths being 11 per cent. under the burials. The death-rate for years up to 1900 were 11 per cent. greater than recorded.

Correcting the incorrect death-rates for the period 1879-1888, by adding 10 per cent. to the registered deaths, the death-rate in that period was certainly not less than 34.65 in the city, and 31.46 in the Dublin registration area.

The mean death-rate in the years 1905 and 1906 was 23.2, and in the Dublin registration area 21.95.

These figures shew that in the last two years the city death-rate was 11.4 per 1,000, and the registration area death-rate 10.5 per 1,000 below the rates in the decade ended in 1888. The decline in the rates was greater in the city than in the townships.

Decline of Typhoid Fever.

Dublin is built partly on stiff boulder clay, partly on loose gravels. Having studied the incidence of typhoid fever in Dublin for many years, I ascertained that the disease prevailed to a greater extent in the districts on the gravels than it did on the clays. This seemed to me to indicate a connection between the soil and the disease. It appeared to me that the disease was of semi-malarial character, and that the micro-organism causing it might for a time exist in filthy soils. Some years ago Dublin was largely a midden city; but since I became chief medical officer of health incessant efforts have been made to adopt the water carriage system of filth removal, and now Dublin has practically got rid of the objectionable midden system—a system which,

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existing still in some English towns, helps to raise their death-rates.

Some years ago Dublin had the highest death-rate from typhoid fever amongst the towns in the United Kingdom, with the exception of St. Helens, in Lancashire. Now, as the following table shows, typhoid fever is an insignificant factor amongst the causes of death.

Deaths from enteric (typhoid) fever per 10,000 of the population.

		Number of Deaths.		Rates of Death per 10,000 of the Population.
1891	...	127	...	5.2
1892	...	91	...	3.3
1893	...	218	...	8.8
1894	...	104	...	4.2
1895	...	80	...	3.2
1896	...	101	...	4.2
1897	...	128	...	5.0
1898	...	135	...	5.5
1899	...	132	...	5.3
1900	...	99	...	4.0
1901	...	85	...	2.9
1902	...	98	...	3.3
1903	...	73	...	2.4
1904	...	61	...	2.0
1905	...	40	...	1.4
1906	...	44	...	1.5

In 1906 fifteen persons out of every 100,000 died from enteric fever.

THE ECONOMIC HOUSING OF THE WORKING CLASSES IN TOWN AND COUNTRY.

By P. C. COWAN, B.Sc., M.Inst.C.E.

At the outset I desire to express my sincere appreciation of the honour done me in calling upon me to act as President of the Section of Engineering and Architecture, and my hope that all who have gathered to this conference in the ancient and beautiful capital of Ireland, will gain pleasure and profit in bountiful measure.

Many of you, in approaching Dublin, travelled from Kingstown on one of the earliest railways in the British Islands, and it is interesting to remember that the first electric railway in Great Britain was that from Portrush to the Giant's Causeway, and that it owes its existence largely to the energy and enterprise of Dr. Traill, Provost of Trinity College. The only railway on the Lartigue or Mono-rail system in these islands is to be found in the West of Ireland, between Listowel and Ballybunion, and the latest ideas regarding mono-railways have sprung from the fertile brain of Mr. Brennan, a native of Connaught.

Dublin is full of interest to the architect and antiquarian, and I regret to think no time has been set apart for a disquisition on the beauties of old Dublin by Sir Thomas Drew, who is a devout student and an eloquent expositor of them.

I should greatly desire to touch upon many points of interest to members of the Institute, with a view of indicating the progress made in matters affecting the public health and public convenience in recent years, but the brief time at my disposal may, I think, be most usefully spent in directing your attention to what has been done in Ireland in connection with the great question of the housing of the working classes, which has engaged so much attention in these Islands since the first Acts bearing on the subject were passed through Parliament in 1851 by the late Earl Shaftesbury, whose successor now most worthily fills the high office of Lord Mayor of Belfast.

Rural Housing in Ireland.

In this country, as in England, the younger members of the rural community, whose views of the possibilities of life have been widened by an education of a kind which was beyond the reach of their fathers, are not content to live on in their native environment, and flock in an increasing proportion to join the life of more varied interests to be found in towns, where, though they as a rule do well on account of their superior physique and vigour, they cause a congestion in the labour market, and crowd out the feebler folk who constitute the unemployed and unemployable in the city. It has now been long recognised that organised efforts should be made to ameliorate the lot of labourers in the rural districts, and to help the working classes in our towns to live a healthy life. But it is in only comparatively recent years that the *laissez faire* policy has been frankly abandoned in connection with this question, and there are many who are still of opinion that, unless satisfactory balance sheets on a commercial basis can be produced with regard to such schemes, they should not be undertaken.

Its Importance.

Public opinion now, however, generally agrees with Goldsmith that—

"Ill fares the land, to hastening ills a prey,
Where wealth accumulates and men decay,"

and while we have not yet re-enacted the statute of the 31st year of Elizabeth, which provided that no cottage should be erected without having four acres of land attached to it, the attention of Parliament has been steadily directed in recent years towards measures calculated to improve the dwellings of the people.

The waste of capital and revenue involved in the conditions of life in slums or insanitary hovels is now being generally recognised, and the perils to all classes of the community caused thereby have become manifest. We cannot afford to allow such conditions to exist, and it is the truest economy to remove them.

Professor Koch says:—

"It is the overcrowded dwellings of the poor that we have to regard as the real breeding-places of tuberculosis; it is out of them that the disease always crops up anew, and it is to the abolition of those conditions that we must first and foremost direct our attention if we wish to attack the evil at its root and wage war against it with effective weapons."

The Working Classes Acts.

In 1895 Dr. Bowmaker attributed the want of success in the application of the Housing of the Working Classes Acts to apathy on the part of local authorities, who, he stated, were unwilling to take action to remedy unsatisfactory conditions, or even to prevent the growth of such conditions. Alderman Thompson, in his invaluable handbook on housing, explains this apathy to some extent by stating that the local authorities dare not carry out the Public Health Acts for fear of inflicting worse evils upon the people than they endure at present.

In 1900 the Local Government Board pointed out that local authorities should have a house-to-house inspection in their districts to ascertain what nuisances call for abatement and what houses are unfit for human habitation, but I am not aware of any really effective action in this respect outside a few of the larger English cities. There is no doubt that the primary need in the case is efficient inspection.

In the report of the Select Committee on the Housing of the Working Classes Acts Amendment Bill, lately issued, it is stated:—

"The house famine in town and country, which often exists in regard to the working classes, is incontestable. The many investigations, Royal Commissions on Housing and Labour, etc., Select Committees of the House of Commons, and official departmental reports have placed the fact beyond controversy," and also "that however cheaply cottages may be built, they cannot be erected in the ordinary rural districts . . . so as to cover interest and sinking fund, and the usual annual outgoings within the rent-paying capacity of the labourer."

A Liberal Policy Necessary.

There is a special reason why a liberal policy is necessary in Acts affecting agricultural labourers in Ireland, as the reports of Mr. Wilson Fox, Labour Commissioner of the Board of Trade, show the average rate of earnings per week (including all allowances in kind) of agricultural labourers in Ireland in 1898 was less than two-thirds of the average rate in Great Britain, and ranged from 8s. 7d. in Co. Mayo to 12s. 6d. in the counties of Antrim, Down, and Dublin.

In July, 1906, before the Select Committee on the Housing of the Working Classes Bill, Mr. Wilson Fox gave evidence that rural housing cannot at the present time be developed upon an economic basis without some form of subsidy or cheap loan, and that even with a 60 year period for a loan at 2 per cent., a cottage costing £150 should be let at 2s. 6d. a week to cover the loan charges, rates, taxes, water supply, repairs, insurance, and collection.

What has Been Done.

The first Labourers' (Ireland) Act was passed in 1883, and at 31st March, 1906, 20,634 cottages had been built, and 887 were in course of erection. For these cottages, loans amounting to £3,415,280 were sanctioned equal to about £159 per cottage with plot. These loans are repayable by an annuity, covering interest and sinking fund, of £4 17s. 2d. per cent., with a period of 50 years.

By the Labourers' (Ireland) Act, 1906, a great improvement in the financial facilities for building cottages was effected, and the District Councils may now obtain loans not exceeding, in all, £4,250,000, repayable by an inclusive annuity of 34 per cent., and the Government has undertaken to pay 36 per cent. of the loan charges, so that only 64 per cent. of £3 5s., or slightly less than 2 1-12 per cent. will be payable by the District Councils for interest and repayment of the loans, for which the period is 68½ years. During the passage of the Bill of 1906, it was stated that the cost of a cottage and plot should not exceed £170. On this assumption the 4½ millions made available should provide for the erection of 25,000 cottages with plots.

With a rent of 1s. 3d. a week for a cottage and plot costing

£170, a deficit of £5 0s. 2d. on loan charges alone was inevitable until the Act of 1906 was passed, but, under the terms of that Act, a similar deficit of only 5s. 9d. per cottage will fall upon the local rates. Of course, in each case the cost of maintenance, insurance, collection, etc., has, in addition, to be met by the local authority. Mr. Wilson Fox puts these charges, along with water supply, at £2 5s. a year, which is probably too high for Ireland.

Between 1883 and 1906 an annual Government grant of £36,811 was distributed in Ireland, to be applied towards the cost of providing cottages under the Labourers' Acts. The allocation was made in proportion to the expenditure on roads and bridges in the various counties, and as such expenditure bore no relation to the urgency of the housing question, or the expenditure incurred in connection therewith, the amount available from this grant for relief of the local rates in respect of each cottage provided, varied from 11s. in Co. Meath, where 1,589 cottages had been provided by 1st November, 1906, to £18 in Co. Armagh, where the cottages provided only numbered 59.

Under the Act of 1906 this annual grant is reduced to £30,811, and will now be distributed according to the number of cottages actually provided prior to 1st Nov., 1906. It will relieve the local rates to the extent of £1 8s. 8d. for each cottage provided before the loans were obtainable on the very special terms of the new Act.

Up to 1906 only about 2 per cent. of the total number of cottages was erected in Connaught, and less than 10 per cent. in Ulster. In the latter province a number of cottages, with weaving rooms attached, have been erected for hand-loom weavers of linen.

The rents now charged throughout the country for a cottage and plot of at least half an acre, provided under the Labourers' (Ireland) Acts, vary from 6½d. to 2s. 6d. a week, the general average being 11d. a week; but in Mr. M. O'Sullivan's excellent book on these Acts, 1s. 3d. a week is indicated as an average rent which might fairly be expected. It was apparently never expected that the rents would meet the annual charges fully, and the original Act provides that the District Council may levy a rate not exceeding 1s. in the £ for the purposes of the Act, and this limit was closely approached in recent years in parts of the counties of Cork, Limerick, and Waterford.

In the report of the Select Commission already referred to, the opinion is expressed that the difficulty as to rent would be largely diminished by the addition of land to the cottage, and one witness who has given great attention to the study of rural conditions in England—Mr. Rider Haggard—said, "The real solution of all this cottage question is small holdings; give the men some land—a small holding—and they will soon find their own houses."

Opinions, I think, widely differ on this point; much evidently depends on the quality of the land and its proximity to good markets. Small holdings are very plentiful in Ireland, and the results are not altogether satisfactory. So far as I can learn, the wisest view as to the Labourers' (Ireland) Acts is that the most pressing part of the work to be done is to supply sanitary houses of moderate dimensions and cost, with a reasonable garden plot, and that there is a danger, if great economy is not exercised, that, even with the facilities of the Act of 1906, the task will become impossible on account of the great disparity between outlay and revenue, and the large number of cases to be dealt with.

Until the present year designs for cottages under the Labourers' (Ireland) Acts were prepared by architects for the local authorities, in accordance with simple general requirements framed by the Local Government Board; but, in accordance with a somewhat general desire, the Board has now issued a set of eight plans for homes with three or four apartments, and a general form of specification which contains a number of alternative clauses to suit varying local conditions.

Four of the plans were obtained by means of an open competition, the terms of which called for a kitchen and three bedrooms, an open shed, and simple pail closet, a height of ceilings on the ground floor of eight feet, and a minimum net cubic capacity in the apartments of 3,300 cubic feet, at a cost not exceeding £130. All the prize plans are for one-storied houses, and the particulars as to gross and net cubic contents are as undernoted:—

Cubic contents of building (excluding out-offices), taking outside dimensions on plan and height from mid-level of foundations to mid-level between eaves and ridge		1st Prize. Design.	2nd Prize. Design.	3rd Prize. Design.
Net cubic contents of each room—				
Living room	...	1,500	1,203	1,305
Bedroom A	...	975	614	938
B	...	975	918	650
C	...	900	612	650
Total	...	4,350	3,347	3,543

About 400 sets of plans were submitted in the competition, and many of the designs were of considerable merit. Those selected have been very freely criticised, and some interesting letters and original designs have recently appeared in the Dublin newspapers. It will, I think, be readily conceded that any such plans would be open to adverse criticism. Some critics urged extreme provisions as to ventilation, and others laid stress on the value of cosy corners. Nearly all the criticisms and suggestions were, however, of some value, and it is to be hoped they will aid in the solution of the difficult problem, how to secure a satisfactory labourer's cottage at a cost which bears a reasonable relation to the rent obtainable and to the available financial resources.

Two enterprising firms of contractors have erected, for the Home Industries Committee, at the Irish International Exhibition, cottages on the designs which obtained the first and second prizes in the competition, but it is probably only fair to them to state that the time afforded for erection was very limited, and also that the roof of the second prize cottage as erected is higher than, and not quite so picturesque as, the roof shown on the premeditated plan. I understand that these firms are prepared to erect cottages according to the prize designs, with or without slight modifications, for a price closely approximating to the sum of £130 already referred to; but, of course, to secure a low cost, they would probably require to have a contract for a considerable number of houses.

In County Cork contracts have already been taken for the erection of a number of cottages, according to the third prize design, at less than £130 for each cottage.

In Ireland, as might be expected, the operations of the sanitary authorities, as to building houses under the Housing of the Working Classes Acts, have not been very extensive, though the attention of the various councils has been carefully directed to the purpose.

The Act of 1903, which gave added borrowing powers for this purpose, does not extend to Ireland, and, except in the case of the county boroughs and a few urban districts which obtained local Acts, the main difficulty has been one of borrowing powers. No Government grants or special terms for loans are obtainable under the Housing of the Working Classes Acts; and at present 4 per cent. is the rate charged for interest only on Government loans for a period of 40 years.

Up to March, 1906, the local authorities in Ireland, under these Acts, provided accommodation for 4,279 families, at a cost of about £180 per family, or £789,874 in all. The average rent is about 2s. 4d. a week, and the average annual loss about £3 5s. per annum. In the Dublin district, including the townships, most interesting examples of municipal effort in this direction can be seen; and the magnificent rehousing schemes of Lord Iveagh are worthy of special attention, as are also the varied and able designs of the City Architect. In the Dublin district the Dublin Artisans' Dwelling Co. has provided 3,500 excellent dwellings, at a cost of about £600,000; and if to these are added the dwellings provided by the Iveagh and Guinness Trusts, the Suburban Artisans' Dwellings Company, and the Association for the Housing of the Very Poor, a total of 4,665 dwellings, costing about £750,164, is reached. It is interesting to observe that these associations have provided more houses in the Dublin district than have been provided by the town authorities in the whole of Ireland.

I would here draw attention to a few points in the recommendations of the Select Committee on the Housing of the Working Classes Acts Amendment Bill, which appear to be of very special interest. It should be noted that in England and Scotland these Acts apply to rural as well as urban districts. This Committee recommends:—

- (1) That the administration of the Public Health and Housing of the Working Classes Acts should be transferred from the Rural District Councils to the County Councils.
- (2) That a great improvement in sanitary inspection should be provided for, and requires the appointment of a staff of county sanitary inspectors, who should be properly qualified whole-time officers and act under a County Medical Officer of Health, who should also devote his whole time to his public duties.
- (3) That a register of survey of all buildings intended for human habitation should be compiled, and revised periodically.
- (4) That the County Councils should make by-laws for every district.
- (5) That the Local Government Board should appoint a special Housing and Public Health Department, with a staff of travelling sanitary and housing inspectors to supervise the administration of the Public Health and Housing Laws by the County Councils and their executive officers.

- (6) That the Treasury should lend money for the purposes specified in the Report, at the lowest rate at which the Treasury can borrow—
- (a) To local authorities, up to the full amount of the security;
 - (b) To public erecting societies, up to 75 per cent. of the security.
- (7) A simplification and codification of the Laws under the Public Health and Housing Acts.

The Select Committee expresses surprise that the Housing of the Working Classes Acts have not been applied to a greater extent for the adaptation of old buildings, but experience in Ireland has shown that as to rural districts such adaptation is usually less economical than new building.

The great influence of a good caretaker on the condition of working-class dwellings, and on the cost for maintenance, is not sufficiently regarded, and I am convinced that a city may possess an abundant supply of cheap homes in fair condition, and yet be in great part insanitary on account of the domestic habits of the people. An improvement in these habits is urgently required, and can only be secured by education in simple hygiene and a much more rigorous inspection of the sanitary condition of houses than is now provided for. The Swiss method, of collecting along with the rent a fixed sum for repairs, and returning to the tenants, at the end of the year, any portion of such sums not actually expended, has much to recommend it, as it tends to secure "the stitch in time." Local authorities in Great Britain and Ireland require additional powers to regulate the laying out of streets and buildings on the outskirts of the towns, to prevent them from being encircled with mean streets.

As to the provision of new houses for the working classes in towns, the operations of voluntary societies or companies should probably be looked to as the most hopeful factor, and it is most desirable that such operations should be aided as far as possible by the State.

COULD THE EXISTING STATUTORY AND DEPARTMENTAL REQUIREMENTS AS TO SEWAGE DISPOSAL BE RELAXED IN CERTAIN CASES WITH ADVANTAGE TO THE COMMUNITY?

By W. KAYE-PARRY, M.A., M.Inst.C.E., F.R.I.B.A.

The object of the present discussion is to elicit expressions of opinion both from professional men and urban and district councillors as to the desirability of relaxing, in some cases, the present statutory and departmental regulations relating to the discharge of sewage into rivers and streams.

The writer ventures to suggest that the discussion should be limited to those parts of the water courses which are not affected by tidal influences, and that the desirability of discharging sewage into such waters or into the sea should not be now considered.

The necessity for some regulations and restrictions in cases where the sewage is intended to be delivered into tidal waters or into the sea is not denied. Indeed, it would appear that a Foreshore Pollution Prevention Act is needed to safeguard the sea coast towns from the nuisance which is in some cases created by the delivery of crude sewage at outfalls so situated that the polluting liquid is not effectually carried out to deep water and dispersed.

But the towns which were present to the mind of the writer when he suggested the subject for debate were those which are so circumstanced that the sewage either with or without treatment must eventually find its way into the nearest or most suitable river or stream.

Having regard to the fact that this Conference is being held in Dublin, it would add greatly to the value of the opinions elicited if the speakers would address themselves to the subject as it presents itself to those of us who live in Ireland, and who are desirous of doing something in our day and generation to encourage the authorities in our country to take steps to improve the sanitary condition of some of our smaller towns and villages.

Irish Conditions.

The conditions which obtain in this country are very different from those which are found in many of the thickly-populated counties in England. Our population is small, and is not increasing, and our country towns are not as prosperous as many of those in the more favourably circumstanced sister country. The rateable values are small, the area of charge is necessarily restricted, the borrowing powers are meagre, and the taxable capacity of the ratepayers is also very limited. The small shopkeeper in many of our little towns is a poor man who has a struggle to make a livelihood, and who is unable to bear the burden of a heavy sanitary rate.

The writer's own experience has convinced him that the principal reason why urban councils are so slow to embark upon schemes of drainage and sewage disposal is the con-

sciousness that a really complete and effective system of sewers, together with fully equipped works for sewage treatment, would place a load upon the shoulders of the ratepayers which they are quite unable to bear. Such a scheme to an engineer or a medical officer of health may appear to be almost a necessity, but to the townspeople it savours of a counsel of perfection which need not be seriously entertained.

L.C.B. Practice.

Hitherto it has been the practice of the Local Government Board of Ireland to require installations of the same character, and capable of doing the same work, as those which are required by the Local Government Board of England. We are all of us prepared to appreciate the desire on the part of the Board to place our towns in as good a position in these matters as those of our English neighbours. If the public health necessitates the best and most effective works for the treatment of sewage, why, it is asked, should we lag behind England? Must we not exert ourselves to provide the means for the construction of these works, even if the expenditure involves great sacrifices from the long-suffering ratepayers?

This argument would be unanswerable if it could be demonstrated that any relaxation of the present regulations would have of necessity an injurious effect upon the health of the community, having regard to the distribution of our urban and rural population. But it must not be forgotten that in Ireland the rural districts are very thinly populated, and this sparse population very seldom depends upon the rivers on which our towns are situated to afford them a supply of potable water; nor are there many towns where the river water is used as a source of supply for the inhabitants themselves.

Generally when a town embarks upon a scheme for water supply, the engineer is able to select a watershed within a reasonable distance from which a gravitation supply is obtainable. The writer is aware that there are some cases where the river water is pumped up, filtered, and distributed, but this is quite the exception. On the other hand, the towns which have no proper waterworks usually rely upon wells, so that the cases where the water of a river which has passed through a small town, village, or hamlet, is afterwards used for supplying some other centre of population with water are comparatively rare.

Again, many of our rivers are relatively large compared with our towns, whereas in the thickly populated counties of England these conditions are often reversed.

Health Dangers.

The gravest danger to public health in many of our Irish towns arises from the pollution of the wells due to leakage of sewage from the sewers and drains. Very often the resources of the ratepayers will not admit of the construction of new sewers and purification works. Loans will not, as a rule, be sanctioned for the sewers unless purification works are also provided. The practical result is, in many cases, that nothing has been done to improve the sewers, and nothing will be done, perhaps for many years to come, unless some relief is obtained from the present regulations.

It often happens that the river on which such a town is built is so situated that the water is never used, and never will be used, for dietetic purposes below the town. Given these conditions, is it wise, for the sake of a mere sentiment, to prohibit the discharge of the partly purified or clarified sewage into such a river, when the other alternative is the permanent pollution of the wells from which the inhabitants obtain their drinking water.

Discharge into Streams.

The writer does not suggest that under any circumstances it would be permissible to sanction the discharge of untreated or partly purified sewage into any stream or water course if it could be shown that such discharge would either create a nuisance or expose the riparian owner or others, or their cattle, lower down, to any danger to health. He is, however, of opinion that, provided the solids are removed as effectually as possible by some simple mechanical means, and provided the sewage is diluted with a sufficient volume of fully aerated river water, no real harm will be done if the water is not used for dietetic purposes. Even in cases where there is a very remote danger of such a contingency, he is not sure that the great benefits which would accrue to the comparatively large population of the town by the construction of a proper system of watertight sewers might not outweigh any possible harm which might result from the discharge of imperfectly purified sewage into the river.

So far as nuisance goes, he believes that, provided the solids are removed by subsidence, efficient mechanical screening, or some other simple expedient, the dilution alone with the pure water will render the creation of a nuisance almost impossible, provided always that the river

contains a large volume of water compared with the volume of sewage. But, further than that, he is satisfied that it can be demonstrated that the presence of the dissolved oxygen in the pure water has a directly beneficial effect in promoting healthy aerobic fermentation in the sewage which will effect ultimately the same result which is at present obtained by contact beds or continuous filters.

Dilution with Water.

It has been sometimes contended that dilution of sewage with clean water is not a proper substitute for the purification of sewage by bacterial methods, but perhaps the answer to that objection is rather outside the legitimate sphere of an engineer's knowledge and experience, and the writer leaves it to the distinguished chemists who have promised to take part in this discussion to express an opinion on this question. He is quite willing to content himself with pleading for those poor little towns who are unable to face the comparatively great capital outlay which is involved in the establishment of a modern sewage purification installation, and who on this account are precluded from carrying out the smaller and less costly, but much more necessary, work of providing watertight, self-cleansing sewers for the effectual drainage of their town. Such sewers are, in the writer's opinion, indispensable for the protection of the wells of the town from pollution, and the subsoil from saturation with sewage from the badly constructed, foul, and leaking sewers which, to his personal knowledge, still exist in so many places.

INTERNATIONAL EXHIBITION.

Oil Gas Apparatus.

Under the lee of the great Gas Pavilion stands a pretty, modest little bungalow, inside which stands a "Mansfield Oil Gas Plant," and those interested in cheap and efficient gas plants will do well to enter and see this plant, for we do not know of a simpler or better one for the purpose for which it is designed.

It is nearly forty years ago since it was invented, and, since then, the system has been in operation in all parts of the earth. The apparatus consists of a producer and gas holder. The producer is the acme of simplicity, consisting of a retort and furnace, and the joints necessary in the working are made automatically, thus obviating the necessity for skilled labour. The ingenious method of jointing the bonnet to the top of the retort is only equalled by its simplicity. At the top of the retort there is a groove half-filled with lead; when the retort is sufficiently hot to make gas, the lead melts, and the bonnet sinks into it, making an automatic gas-tight joint. The other end of the bonnet fits into a cup at the top of the stand-pipe, which is filled with water. Oil is contained in a suitable tank, convenient to the producer; from such tank the oil is led to the oil syphon into the funnel of which it is allowed to run in a fine stream; thence it passes into the retort, where, in its fall, it is vapourised and converted into a permanent gas, which rises into the bonnet, whence it passes down the stand-pipe into a hydraulic syphon, through the water of which it bubbles, and passes on to the gas holder and is stored. This apparatus will make gas from any kind of oil, fat, or grease. In England the lower qualities of shale oil are used; in India, kerosene oil; in Burmah, crude earth oils; and installations have been erected in various parts of the world for using creosote, palm oil, castor oil, cocoa-nut oil, Rangoon oil, kerosene oil, fish oil, tallow, raw fat, and in fact, any oleaginous substances whatsoever that can be liquified.

Messrs. Mansfield claim that the gas produced by their process has four times the illuminating power of coal gas, consequently they use burners of a smaller size. One great point about the gas made by this apparatus is that the gas is permanent, and does not condense in the pipes conveying it. This is a great matter where the gas has to be conveyed through long lengths of piping. Of course the price of the gas depends upon the price of oil, but one gallon of oil will make sufficient gas to give 100 lights of 16 candle-power for 1 hour, or 10 brake horse-power for one hour. Now, Messrs. Mansfield give the price of gas as supplied by one of their apparatus, in an out-of-the-way rural district, as 10½ hours' burning of one 40 candle-power light = 420 candle hours, at the cost of *one penny*! That price includes all charges and profit for the rural district council. To get the same result, i.e., 420 candle hours by electricity would cost 6d. per unit, and as lamps consume 4 Watts per candle at the lamp, this = 1680 Watts at 4d. per 1,000 Watts = 6.5d. This also covers all charges, profit, etc. These figures speak for themselves, and, as we have no doubt that to those interested in the lighting problem, Messrs. Mansfield can give an amount of information on this point which would open the eyes of those who imagine that electric light is the simplest and cheapest illuminant, to the possibilities and benefits of the Mansfield Oil Gas Apparatus.

BELFAST CITY HALL.

Particulars of Expenditure.

The following detailed account of expenditure in connection with the new Belfast City Hall will probably be of considerable interest to our readers. With the exception of Messrs. Gibson and Co., Belfast, who supplied clocks, and an as yet unascertained balance due the building contractors, it represents the total expenditure on the building.

BUILDINGS.

BUILDING CONTRACTORS.	£	s.	d.
Messrs. H. and T. Martin, Ltd. ...	152,176	8	6

CARVING.

H. H. Martyn and Co., Ltd., Cheltenham ...	3,094	3	8
Purdy and Millard, Belfast ...	3,648	13	0
Mr. J. E. Winter, Belfast ...	1,075	0	0

CONSTRUCTIONAL STEELWORK.

Clyde Structural Iron Co. ...	2,703	5	8
P. and W. McLellan, Glasgow ...	3,150	1	7

ELECTRIC FITTINGS.

J. W. Singer and Sons, Frome ...	2,500	0	0
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ELECTRICAL WORK, HYDRANTS AND LIFTS.

Wm. Coates and Sons, Belfast ...	4,400	0	0
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LIFTS.

The Medway Lift Co., London ...	280	0	0
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HEATING AND VENTILATION.

Ashwell and Nesbitt, Ltd., London ...	5,670	0	0
Musgrave and Co., Belfast ...	262	10	0

MARBLE WORK.

Farmer and Brindley, London ...	21,681	3	3
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MOSAIC PAVINGS.

Diespeker, Ltd., London ...	1,484	13	0
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PLASTER WORK.

George Rome and Co., Glasgow ...	7,164	4	7
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PLUMBING AND SANITARY WORK.

John Dowling, Belfast ...	3,809	13	1
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SCULPTURE.

Frederick Pomeroy, A.R.A. ...	2,000	0	0
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STAINED GLASS.

Ward and Partners, Belfast ...	1,331	7	0
Campbell Bros., Belfast ...	225	11	11

WOOD BLOCK FLOORING.

Ellis, Geary and Co., London ...	877	9	7
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WROT IRONWORK.

Francis Ritchie and Sons, Belfast ...	681	7	0
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UNCLASSIFIED.

Goodall, Lambe and Heighway, Ltd., Manchester ...	986	17	6
Miscellaneous ...	4,211	0	11

Total Buildings ...	223,413	10	3
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FURNITURE.

H. and T. Martin, Ltd., Belfast ...	4,085	15	3
Gillespie and Woodside, Belfast ...	2,425	17	6
Goodall, Lambe and Heighway, Ltd., Manchester ...	2,832	14	9
Hampton and Sons, London ...	256	6	6
Harding ...	484	10	6
Maguire and Edwards, Belfast ...	851	3	0
H. H. Martyn and Co., Ltd., Cheltenham ...	82	14	1
Partridge and Cooper, London ...	82	10	10
Purdy and Millard, Belfast ...	804	11	9
Skidmore and Sons, Wolverhampton (Safes) ...	213	0	0

Total Furniture ...	12,119	8	5
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46 and 47 Dame Street, Dublin.

MALAHIDE WATER SUPPLY.

The Bill for the supply of water to Malahide came before the House of Commons Committee last week, consisting of Sir Henry Kimber, Mr. Fullerton, Mr. Stephen Gwynn, and Mr. Scaresbrick.

The Bill was opposed on behalf of Mrs. O'Callaghan, an occupier of land in the vicinity of Malahide.

From the statement of Mr. Bushe, in opening the matter, it appeared that the cost of the scheme in the Bill was about £7,000, but it was hoped that after a time the supply would be extended to Swords, a place not far from Malahide, with a population of about 400. The population of Malahide itself was 942, although the population of the district to be served was 2,400. The supply was calculated at 30 gallons per person per day, which, calculated at 2,000 persons, meant 60,000 gallons per day. The water was to be taken from the river which flowed through the district, and the scheme was opposed by Mrs. O'Callaghan, of Brackenstown, whose place is about four miles from Malahide up the river. This lady holds an estate on the banks of the river, and there is a stud farm, her son as well keeping a pack of hounds. Portion of the supply is taken from two springs some way above her place, and the opposition was on the ground that this diversion would most injuriously affect her supply in the dry season, in compensation of which she asked that a supply should be given to her of 9,000 gallons per day the whole year round.

Mr. John Stack, Clerk to the Balrothery Union, was examined, and said he had no doubt Mrs. O'Callaghan wanted no more than to defend what she considered her own rights. The evidence was that the supply only yielded 60,000 gallons in June, but in the winter the supply was much more. There was an influx of visitors to Malahide, which is a seaside resort near Dublin, in the summer time. The scheme, in his opinion, was a good one.

Mr. Robert Boyd, C.E., said he was the engineer to the scheme. They got all the land they wanted except from Mrs. O'Callaghan. The average flow in June was about 60,000 gallons. The reservoir would hold about 15,000,000 gallons. The total distance to bring the water was about six and a half miles. It was gravitation. There was a four-inch pipe in Malahide for distribution. It was all very easy.

Mr. Bushe—Do you think the proposal that is made to give Mrs. O'Callaghan 9,000 gallons a day is absurd? Yes. The Committee passed the Bill.

A FERRO-CONCRETE BREAKWATER.

In consequence of the inconvenience experienced by vessels making use of the north and south docks at Passage East, in Waterford Harbour, the Irish Board of Public Works decided a year or so ago upon the construction of a breakwater for the purpose of protecting the shipping, the entrance to the docks being of a somewhat exposed nature. The design adopted was of a particularly simple character, and well suited to the conditions of the site.

The breakwater is 120 feet long by 20 feet wide, the sides being parallel for a length of about 80 feet, and afterwards converging to form a point at each end. The foundation consists of a cofferdam, made by driving Hennebique grooved sheet piling around the area selected, the piles being formed into a water-tight wall by dowels of cement grout filled into the adjacent grooves. The length of the piles ranged from about 15 feet up to more than 30 feet, according to the depth of the harbour bed, and the cofferdam was finished at the height of about 3 feet above low water mark. Having been completed, the cofferdam was filled up with rubble, and upon its upper edge was built a superstructure consisting of ferro-concrete columns, walls, horizontal and diagonal bracing, longitudinal and transverse deck beams, and a continuous deck slab. All these portions of the structure were monolithically connected, and suitably reinforced for withstanding the most severe strains likely to be caused by the impact of waves or vessels. The decking of the breakwater is at the height of 4 feet above high water mark, and we understand that the work has fulfilled its purpose in an entirely satisfactory manner.

The designs were prepared by Mr. T. M. Batchen, M.Inst.C.E., with the collaboration of Mr. L. G. Mouchel, M.Soc.C.E. (France), and the contractors were the Yorkshire Hennebique Contracting Co., of Leeds.

This type of breakwater certainly represents an ingenious application of ferro-concrete, and although manifestly unsuitable for exposed situations, it might be adopted with advantage in sheltered harbours and river estuaries, where trouble is experienced from waves and currents.

ENGINEERING NEWS.

Antrim.—The Portrush Urban District Council have decided to invite tenders for lighting the town either by gas or electricity, according to the plans and specification of Mr. John Woodside, A.M.I.E.E., Belfast.

Armagh.—The reservoir at Keady is about to be overhauled and repaired and new pipes laid down. The cost is estimated to be about £370. Mr. Henderson, engineer to the Council, is responsible for the carrying out of the scheme.

Birr.—The Local Government Board Inspector has opened an enquiry at Birr to consider an application from the Urban Council for a loan to carry out a scheme of water supply in accordance with plans prepared by Mr. Francis Bergin, B.E., 36 Westmoreland Street, Dublin.

Ballybay.—The Castleblaney Rural District Council are open to receive tenders until 17th July for carrying out the following works in connection with the Ballybay sewerage scheme:—The construction of sewers, manholes, septic tanks, and bacterial filters, the laying out and preparing of land for irrigation purposes, etc., etc. (see our advt. column for further particulars). Plans and specifications have been prepared by Mr. Francis Bergin, B.E., 36 Westmoreland Street, Dublin.

Dungannon.—The Dungannon Urban Council is considering the offer of an English firm for the lighting of the town, the present gas contract having just expired.

Donegal.—Tenders are invited for the removal of portion of existing sea embankment and of tidal sluices, etc., etc., at Inch Level Intake, Lough Swilly, Co. Donegal, and construction and completion of new tidal sluices and embankment and other subsidiary works for the Hon. T. A. Brassey. Plans have been prepared by Mr. J. J. S. Barnhill, A.M.Inst.C.E., 1A Strand, Londonderry. Tenders will be accepted up to July 22nd.

Kilkenny.—The District Asylum invite tenders for the electric lighting and water supply to the district asylum. Tenders close 16th July, 1907.

Tipperary.—With reference to the injunction recently obtained by Lord Barrymore against the Tipperary Urban Council, restraining them from polluting the river Ava, Mr. F. Bergin, 36 Westmoreland Street, Dublin, has been engaged to inspect and submit a report as to the best means of abating the nuisance complained of.

Engineering Trades.—The representatives of masters and men in the engineering trades have been conferring privately in London regarding the question of wages in Scotland, the Midlands, and the West Coast.

The Council of the Institution of Civil Engineers have appointed Sir William Matthews, K.C.M.G., President of that Institution, to succeed the late Sir Benjamin Baker, K.C.B., K.C.M.G., as one of their representatives on the Main Committee of the Engineering Standards Committee.

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Assistant desires situation with builder; general knowledge, management, book-keeping and accounts; good references and experience. Apply—Box 156P.

CONTRACTS.

CASTLEBLAYNEY RURAL DISTRICT COUNCIL.

BALLYBAY SEWERAGE.

The above Council will, at their meeting, to be held here on Wednesday, the 17th July, 1907, consider Tenders for carrying out the above Works, which comprise the construction of Sewers, Manholes, Septic Tanks, and Bacterial Filters; the laying-out and preparing of Land for Irrigation purposes, and other works, in accordance with Plans and Specifications prepared by Francis Bergin, Esq., B.E., 36 Westmoreland Street, Dublin, which can be seen at my Office during ordinary office hours.

Sealed Tenders, accompanied by a Schedule of Prices, and containing the names and addresses of two solvent Sureties willing to join in a bond of £600 for the due performance of the Contract, will be received by me up to Twelve o'clock noon on the above-mentioned date.

Tenders should be addressed to the Presiding Chairman, and endorsed "Tenders for Ballybay Sewerage," and no Tender will be considered which is not on the proper form, to be had from the undersigned for a payment of £1, which will be returned on receipt of a *bona fide* Tender.

The Contractor must pay all expenses in connection with the preparation and execution of, and Stamp Duty on, Contract and Bond.

The Council do not bind themselves to accept the lowest or any Tender.

(By Order)

BERNARD COYLE,

Clerk to the Council.

Boardroom, Workhouse, Castleblayney,
1st July, 1907.

BLACKROCK AND KINGSTOWN DRAINAGE BOARD.

NOTICE TO BUILDERS, IRON MERCHANTS, AND OTHERS.

The Board wish to dispose of the following surplus plant:—

- (a). One 12 b.h.p. Otto Type Gas Engine, fitted to work with the Dynamic Gas Plant Engine; in good order, and has recently been fitted with new piston and cylinder liners. Complete with silencers, exhaust boxes, piping, etc. Provided with valves to enable ordinary gas to be used.
- (b). Ditto.
- (c). One 5 b.h.p. Petter's "Handyman" Oil Engine; complete silencer, cooling tank, belts, pulley; speed 400 revolutions p.m.
- (d). One 3-inch High Lift Type Gwynne's Centrifugal Pump, only worked for three months.
- (e). A Large Galvanised Tank.
- (f). Quantity of Steel Piping, with Flanged Ends.
- (g). Five Screw-down Valves, with Gunmetal Faces.
- (h). Small Fittings.

All above can be seen at the Town Hall, Blackrock, by application to the Store-keeper.

Tenders will be received for the purchase of any of the foregoing lots up to three o'clock p.m. on the 29th inst.; all Tenders to be marked on the envelope "Tenders," and with the special letter of the lot tendered for.

P. C. DOYLE,
Secretary.

GIRDERS, ETC., FOR SALE.

Wrought-iron built Girders for Sale, short time in use, good as new, varying in lengths from 13 to 33 feet, width 8½ in. to 12½ in., depth, 1 ft. 3 in. to 2 ft. 3 in. Also a few Box Girders.

Can be seen at Cork Street Engineering Works, Dublin.

CONTRACTS.

TO BUILDERS.

Tenders are invited for Improvements to Dromcollogher Church for the Rev. Michael Byrne, P.P.

Drawings and Specifications can be inspected on application to the Rev. Father Byrne, or at the Offices of the undersigned any day (Sundays excepted) between the hours of 10 a.m. and 4 p.m.

A deposit of £3 must accompany each Tender, which will be returned on receipt of a *bona fide* Tender.

Sealed Tenders, endorsed "Dromcollogher Church," must be delivered to the Architect on or before Monday, the 15th day of July next.

The lowest or any Tender not necessarily accepted.

BRYAN E. F. SHEEHY, Architect,
57 George Street, Limerick.

29th June, 1907.

TO BUILDERS.

Tenders are invited for proposed Alterations and Improvements at "Roseneath," Rushbrooke, Co. Cork, and at Cottage, Ballynoe, Co. Cork, for the Right Hon. the Lord Barrymore, according to Plans and Specifications prepared by the undersigned, with whom Tenders are to be lodged not later than the 20th inst. The lowest or any Tender not necessarily accepted.

W. H. HILL & SON,
Architects,
20 South Mall, Cork.

July, 1907.

J. & C. MCGLOUGHLIN, Ltd.,



Telegrams—
"Metals, Dublin."

Gt. Brunswick St., DUBLIN.

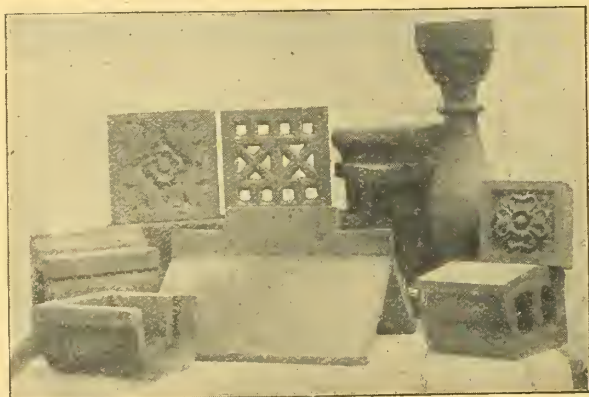
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"Thornycroft" Steam Waggon; 3 ton; excellent condition; subject to any expert examination; lot spare parts; must be disposed of immediately.—Peare's Motor Works, Waterford.

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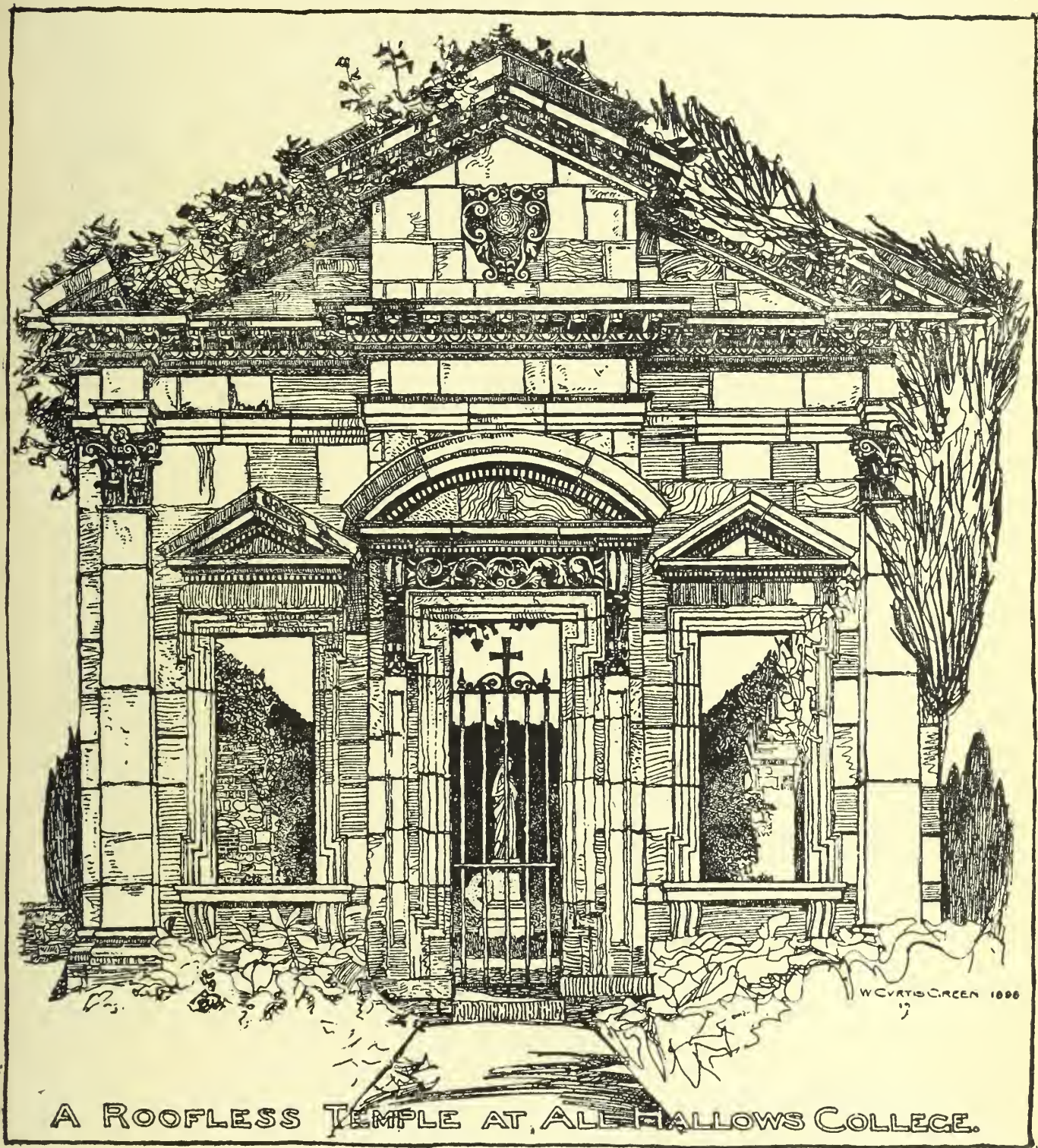
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HEAD OFFICE

July 27, 1907.

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TOPICAL TOUCHES.

Business premises in Kildare were destroyed by fire on Saturday last. The extent of the damage is estimated at £10,000.

* * * *

Evidence in favour of a ship canal, practically along the course of the present Clyde and Forth barge canal, and estimated to cost over £7,000,000, was given before the Canals' Commission last week.

* * * *

The Prince of Wales has contributed fifty guineas towards the fund which has been established for the purpose of defraying the cost of repairs rendered necessary by the fire at Selby Abbey.

* * * *

On Thursday last, Mr. Richard Kelly, Local Government Board Inspector, opened an inquiry into the petition of the Rathdown Rural District Councils to build some 165 cottages for labourers.

* * * *

The Leinster Club, Dublin (one of the oldest clubs in Ireland) is being completely overhauled and renovated under the direction of Mr. J. J. Farrall, Architect, Westmoreland Street. Messrs. J. and P. Good, Ltd., are the contractors.

* * * *

In acknowledging the address presented to him by the Kingstown Urban Council, His Majesty the King referred in terms of approbation to the work done by the Council in regard to the provision of dwellings for the artisan and labouring classes, and commended the scheme for housing the "very poor" about to be proceeded with.

* * * *

Many of the Irish contingent on the English Association excursions will remember Mr. Dan Gibson, of Windermere, who came for many years, and will learn with regret of his death from appendicitis, at the early age of 41. Mr. Gibson was for several years in partnership with Mr. Thomas Mawson, the well-known garden architect, who recently published a work on gardens which we lately noticed. Mr. Gibson was exceedingly popular with the excursion parties, and a career full of promise comes to an untimely end.

* * * *

A new material named "Manu Marble" is shown at the Ironmongers' Exhibition now being held in London at the Agricultural Hall. "Manu Marble" is a manufactured article in imitation of real marble, to which it bears a close resemblance, the veins and markings going right through the material, and the polish being obtained by friction, so that it can be repolished whenever it becomes dull. The makers are the Manu Marble Co., Ltd., Gloucester, and 118 Queen Victoria Street, London, E.C.

* * * *

Another useful exhibit is that of the Hanwell Pendant Co., of 96 Abingdon Street, Northampton, who show interesting specimens of their flexible gas tube fittings. The new fittings produce a symmetrical pendant without weights, or varying tension springs, and may be extended from twelve inches to no less than seven feet, which, it is claimed, is unique. The makers recently received an order from one firm alone for 10,600 pendants.

Repairs to the Palace of the Archbishop of Dublin, in Stephen's Green, are at present being carried out by Messrs. William Beckett and Son, contractors.

* * * *

A scheme on foot for re-building Aldwyth in London will, it is estimated, involve an outlay amounting to £500,000.

* * * *

A certain section of the London County Council suggest deferring the building of the new County Hall until such time as the Aldwyth and Kingsway schemes prove more remunerative. The Council have received two tenders for the purchase of the Aldwyth island site.

* * * *

A theory having been propounded that the somewhat unsatisfactory, or "sensitive," state of the subsoil upon which St. Paul's Cathedral, London, rests is due to the action of the tides, trial borings were begun on Monday last. The cost of the trials will be borne by the proprietors of the *Daily Mail* newspaper, and is being undertaken for the purpose of testing the theory.

* * * *

We understand that the commission to design and superintend the building of the Limerick Technical Institute has been entrusted by the Corporation to Messrs. Morris and Ryan, of London, whose design was placed first by the assessors in the recent competition. It is hoped to receive the sanction of the Department of Technical Education to the plans at once, so that building operations may be begun at the earliest possible moment.

* * * *

The annual excursion of the Architectural Association of Ireland took place on Tuesday, 16th, and lasted the remainder of the week. The venue was Warwick, and the members were one and all more than satisfied with the admirable arrangements made by Mr. Edwin Bradbury, who, for the third or fourth year in succession, acted as excursion secretary, while the headquarters at the Hill House, Warwick, were most comfortable.

* * * *

A good story was told by our kind host at the Hill House anent the proverbially inaccurate descriptions of buildings given by guides and vergers to Americans and other credulous trippers. A fine wide arch in St. Mary's having been pointed out to the A.A.I. as an alleged leper window in the choir—an arch wide enough to drive a cab through!—he mentioned that, visiting Gloucester Cathedral some little time ago, the talkative and somewhat mixed verger, noticing one of the party looking closely at what appeared to be a bullet mark, observed, "This, ladies and gentlemen, is some remains of the damage done by Robinson Crusoe and his army!" Possibly he meant Oliver Cromwell, but history does not record.

* * * *

On 12th August the London Association will hold their annual excursion at Norwich. This date, coming so soon after the Irish excursion, is rather against there being a large Irish contingent at Norwich. Last year, for the first time on record, there were no "Irishry," which was probably accounted for by the very successful Irish excursion to Kettering, and the International Congress of Architects in London, which drew quite a number of Irish architects. This experience contrasts

curiously with that at Lancaster in 1897, when, out of a party of thirty, about twelve hailed from either Dublin or Cork.

* * * *

Some time ago we mentioned that a proposal to form a Quantity Surveyors' Association in Dublin was on foot. We regret to learn that this scheme has, for the time being at least, fallen through. This is, we think, rather a pity, because the formulation of a definite rule of practice and uniform scale of fees would tend, not alone to benefit surveyors, but would also be an advantage to builders and architects, and would similarly be an advantage in dealing with clients. The formation of such societies has done a good deal for other professions, and has tended to produce a better standard of professional etiquette, as well as pleasanter personal relations. If the members of a profession in a city or town are personally well acquainted there is less cultivation of the objectionable *role* of "expert witness," who comes into court more for the purpose of contradicting his professional brother than with the object of elucidating the truth. This is a class of evidence hardly productive of good feeling, or the elevation of the profession to which the witnesses belong.



THE TYPICAL FACTORY.

We are favoured with an interesting publication bearing the above title, and issued by the Trussed Concrete Steel Co., of Detroit, Michigan, U.S.A. It deals in an attractive fashion with the construction of a huge factory built for the Geo. N. Pierce Company, of Buffalo, New York, U.S.A., who are the makers of the Great Arrow car, one of the best and most widely used of American automobiles. Finding that the great demand for their cars necessitated the provision of more extensive and complete manufacturing facilities, the Pierce Company decided to build a plant which would be the finest in the world. With this object they approached the leading builders of the United States, but found that contractors using the ordinary methods, including structural steel, could not guarantee to complete the proposed factory in less than twelve months. Such a delay meant a serious loss in business, and a solution of the problem was looked for in other directions. At this point reinforced concrete was brought to their attention, and, to make a long story short, the Pierce Company and their engineers, after extensive personal investigation, decided to adopt the Kahn system of reinforced concrete. The contract was signed with the Trussed Concrete Steel Co., of Detroit, who undertook to finish the immense structures necessary within the phenomenally short space of four months. When it is considered that the completed buildings have over 325,000 square feet of floor space, that at times as many as 1,000 men were employed in the works, and that over forty huge train loads of material were used, some idea of the magnitude of the undertaking may be arrived at. Some of the rooms are 200 feet by 400 feet in dimensions, and in the assembly building and garage unsupported beams of reinforced concrete, 61 feet and 55 feet in length, were successfully employed. The vast extent of roof area made the problem of condensation an important one, which, however, was solved by the Kahn system and hollow tile roof construction.

The Kahn reinforced concrete system depends on the use of the trussed bar, the possibilities of which had been amply demonstrated before the huge Pierce factory was attempted. This bar is a half truss, the diagonal or tension members being struck directly from the same special rolled section that furnishes the bottom chord of the truss. This combination of the diagonals and main bar provides all the tension members required in the beam, and the concrete in which the bar is embedded takes the compression. Thus through the two materials, each taking the stress which it is best able to take, a perfect truss action results. Each girder, beam, or joist is then a truss, and it is due to this that the heavy, wide-span construction is accomplished with the Kahn system. How these great buildings were reared up, how they look, and a fine idea of the vast unbroken floor areas, may be gleaned from the booklet before us, which is splendidly illustrated. The perusal of it is bound to stimulate the interest of our readers in reinforced concrete, and we would recommend them to apply for a copy to the Trussed Steel Concrete Co., of London, who will give prompt and courteous attention to all letters addressed to them.

OUR SOUTHERN LETTER.

(By OUR CORRESPONDENT).

Cork Junction Railways.

It is reported that the directors of the Great Western Railway Company of England are at present visiting Cork for the purpose of holding meetings in connection with the above project, and to make arrangements about the preliminary work in connection with the acquisition of the lands to be taken for the construction of the railway. This in itself is a good sign, and it is to be hoped that the company now intend to complete the project at an early date instead of letting the time expire which has been allowed by Parliament for the construction of the works. Already twelve months have elapsed since sanction was obtained, and up to this no progress locally has been made.

Haulbowline Dockyard.

In connection with this dockyard the Admiralty propose to construct a bridge to connect the island with the mainland across what is known as the back or western channel, near Ringaskiddy. In order not to interfere with the navigation of the channel, they propose to construct the central portion of the bridge with a fifty foot opening span. This should prove useful in the construction of the proposed extension of the dockyard.

Cork Sanatorium Competition.

The Cork Joint Hospital Board received seven applications for particulars in connection with the competition for the best set of plans for a sanatorium, the following being the names published:—James F. Mullen, Cork; J. E. Hellowell, Durham; J. R. Burns, Dublin; Wrench and Sons, Ipswich; Houston and Houston, London; E. C. H. Maidman, Edinburgh, and H. W. Lockwood, Sheffield. As may be observed, the list contains only one applicant from Cork and one from Dublin.

The terms of the competition are not such as would attract many competitors.

The Joint Board applied to the Local Government Board to appoint one of their inspectors to act as assessor; this, however, they declined to do.

Mr. Albert E. Murray, A.R.H.A., of Dublin, was then unanimously appointed to act as professional assessor.

Sewerage Works, etc.

The Local Government Board have sanctioned an additional loan of £900 to the Castletownbere Rural District Council for the purpose of improving the sewerage of Castletownbere.

The original loan was for £600, and the total expenditure on the works up to date amounts to £1,362.

The Killarney Rural District Council are applying for tenders for carrying out sewerage works in the town of Killorglin, in accordance with specification, which may be seen at the Workhouse, Killarney. There is no mention made of any plans having been prepared; possibly in Killorglin sewers may be constructed without plans or engineers being employed.

The Middleton Rural District Council have received plans and specification for the carrying out of improvements to the Ballycotton Waterworks, and are now inviting contractors to tender for the execution of the work.

General.

The following information may prove useful in connection with cottages to be built under the new scheme:—

The Clerk to the Fermoy Rural District Council has prepared the following estimate of cost of labourers' cottages—Total number of cottages, 437; acquisition of land, £10,051; fencing, £210; building 434 cottages, £56,420; acquiring and repairing three houses, £335; legal expenses, £150; engineering expenses, £800; other incidental expenses, £983; building gate piers and providing gates, £1,311. Total expenditure, £77,200.

The Cork Harbour Commissioners have expended on their new offices the sum of £36,152, and propose to expend a further sum of £3,975. These amounts include a sum of £972 for furniture and fittings. The Parliamentary estimate amounted to £40,270 for buildings, and estimate for furniture and fittings, £972.



The Isolation Hospital, Enfield, is being warmed and ventilated by means of Shorland's patent double-fronted Manchester stoves, with descending smoke flues, supplied by Messrs. E. H. Shorland and Brother, of Manchester.

MODERN STEEL BUILDINGS.***The New Era.**

By MR. JOHN M. EWEN, M. Am. Soc. C.E.

I shall speak to you this afternoon about modern steel buildings, and also about the modern methods of business organisation which are necessary to the rapid and efficient construction of such buildings.

The first big building in which the idea of a steel frame was used to any extent was the Home Insurance Building in Chicago. This building was erected in 1883. Only 24 years have passed since that time. You can see, therefore, that the whole revolution in modern building construction has been condensed into a space of less than a quarter of a century.

The principle first embodied in that building has completely changed the character of big building construction. But there has been a change, not only in the buildings themselves, but in the methods of organizing the architects, the engineers, the contractors, and the artisans who construct the buildings. Fifteen years ago the erection of an eight or ten storey building was considered a good year's work. To-day a building twenty-five or thirty stories high can be erected within that same length of time. This change is due to improvements in methods of work. The modern construction engineer, engaged in the erection of big buildings, has a business organisation which differs from the business organisation of 25 years ago almost as much as the steel building itself differs from its solid-masonry predecessors.

As an example of the rapidity with which a modern engineering force can work, we may take the Sears-Roe-buck plant on the West Side of Chicago. This plant consists of four large buildings. The largest in the group is ten stories high, four hundred feet wide and sixteen hundred feet long. The total cost of the plant, including all buildings, was more than four million dollars. Yet the whole job was done in eight months. In other words, building construction has not only changed, but accelerated. It is not only different in materials, but different in methods. It has not only more steel, but more speed.

And, by the way, the speed is just as important as the steel. When an old building is torn down in the heart of a great city, the owner loses his rents from the time when the old tenants are turned out to the time when the elevators begin to carry the new tenants to their new offices. Can the engineer-constructor have that new building ready in ten months, or will it take him eleven? The difference of one month is important. There are office buildings which have a monthly rental roll of fifty thousand dollars. That sum represents to the owner the difference between an engineer-constructor who can put up his building in ten months and the engineer-constructor who cannot do it under eleven. It is, therefore, absolutely necessary that the modern engineering force should be able to do its work, not only with the utmost care, but with the utmost rapidity. This means that the best type of engineer-constructor, in order to be able to handle big building operations, must have in his own office, or else closely associated with him, all the different kinds of talent which go into the construction of the modern skyscraper. In other words, the modern engineer-constructor is not an individual. He is an organisation.

You will be able to see what I mean if I just name the different kinds of trained men who ought to be included in an engineering force competent to perform a modern building operation with the smallest possible loss of time. An architect; a civil engineer; an electrical engineer; a mechanical engineer; a structural engineer; a sanitary engineer; a fire protection engineer; a purchasing agent; a construction superintendent; an operating engineer; an accountant. For the best work, it is no longer advisable to have all these men in separate offices of their own, and to call them in from time to time in an advisory capacity to superintend their particular part of the work. It is better to bring them into what is, in effect, a single organisation. They must work like the players in a football game, not as individuals, but as a team. And they must have a captain, whom they all trust, and whom they all obey. He is responsible for every play in the whole game. He directs every movement. But he must have men under him who know their own specialties, just as the left tackle in a football team knows how to be a left tackle, or the half-back knows how to be a half-back. The captain can then send that team down the field and have it under complete control, and know what every man is doing every second. The difference between the old style football of fifty years ago, when the players roamed

all over the field very much at their own sweet will, and the modern organised football, in which the whole team is under perfect control and moves like one man, is the difference between the scattered individuals who used to collaborate in the construction of a building fifty years ago and the modern, compact engineering force which brings all those individuals together in one team, and which can calculate, almost to a day, the exact time which it will consume in getting a certain piece of work done.

Let us begin now at the beginning, and see what happens from the time when a man decides that he wants a new building to the time when that building is handed over to him, ready to be used. We will suppose that our man comes to the office of an engineer-constructor of the kind we have been talking about. He explains that he has an old building which will have to be torn down, and that he wants to replace it with a modern office building, on which he is willing to spend a certain amount of money. He naturally wants as much done with that money as possible. The engineer-constructor now proceeds to make a prophecy of that new building, complete in every detail. There are men in the office who can estimate the cost of every particular kind of thing that will be needed. Each man can make a pretty fairly accurate forecast of the expense that will be connected with that feature of the building in which he is particularly interested. The advantage of such a careful estimate of prospective cost is manifest. The owner of the building then knows exactly what kind of building he can afford, and just about how much money he will have to spend. This is an advantage which in former days it was sometimes very difficult to secure.

There have been times when an architect would draw plans that were attractive to the owner, and that promised a building of a kind that he would enjoy possessing. These plans having been all made, and the dimensions and decorations of the building having been decided upon, the different contracts for steel, brick, granite, etc., would be awarded, one after the other. Everything would go on pretty well, till one day the architect would come to the owner and say: "Well, I am sorry, but that building will cost three hundred thousand dollars more than we thought it would." In fact, there is one architect who always introduces some humour into the situation, and says: "Well, you'd better go out and take half a million dollars more away from somebody. We'll need it before we get through." These things are often quite annoying to the owner. They are avoided when architects and engineers work out the plans together, and when the architects can compare their ideas of what would be desirable with the ideas of the engineers as to what is financially possible.

The exactness with which a financial estimate can be made was seen in the case of the new County Building for the City of Chicago. When the plans for that building were being drawn up it was shown that there was a certain appropriation for it, and every effort was made to draw the plans in such a way as to make allowance for every possible detail and still keep within the appropriation. Finally, after the estimate had been made, and after the specifications for the steel contract, the granite contract and all other contracts had been printed, showing just what was wanted, the contractors were all asked to come in and bid on the work. When all the bids were in, and when all the contracts had been awarded, it was found that the actual contract cost was only fifty thousand dollars away from the estimate of five million dollars that had been made before any of the contractors had named their price. When building can be done this way it saves the nerves of the owner. If the estimate is too high, he can cut his plans and try to satisfy himself with a more modest building. If the estimate is satisfactory, he can order the engineer-constructor to go ahead.

The engineer-constructor must now plan his campaign like a general. He must not allow a moment to be lost. And, in order to avoid the loss of a moment, he must lay out a complete time schedule for his building to follow. The civilian is likely to imagine that the general of an army simply starts out in the direction of the enemy and wanders along till he finds him. In the same way the man who is not familiar with engineering practice is likely to think that the engineer simply starts building and keeps on building, till some day he gets through. As a matter of fact, the first thing that an engineer does when he begins a building, is to calculate practically the exact day at which that building will reach each successive stage in its construction. In other words, he writes a diary for that building, but he writes it beforehand, instead of afterwards. This table of dates shows the exact stage at which the building is scheduled to arrive on the days mentioned. It gives everybody connected with the construction of the building his cue for coming on and going off. It is the running-time for the construction engineer, just as the

* Paper read before the students of the School of Practical Science, Toronto.

time-table of a railway is the running-time for the locomotive engineer.

As we go on now with our building, we will suppose that the owner wants a building with a steel frame. It is a mistake, however, to suppose that a steel frame is absolutely essential to the construction of a high building. There is one reason, among others, why a solid masonry building would be unsatisfactory to the modern owner. The walls of such a building have to be extremely thick. They must be immensely broad and strong, in order to support the weight of the structure. The consequence is that a great deal of space that might be used for offices has to be used for walls. If such a building had a steel frame, the walls would be so much thinner that the floor space, capable of being devoted to offices, would be increased by twenty-five per cent. Obviously, it is to the advantage of the owner to build with steel. The old County Building, Chicago, furnished us with an illustration. The walls of this building were twenty feet thick at the first floor. The walls of the new building, which is steel construction, at the first floor, are only three feet thick. The saving in floor space is obvious.

There is also another reason for preferring steel frame buildings of the most modern construction to buildings of the old type. This second reason is their superior safety.

Masonry by itself, or slightly and imperfectly supported, cannot sustain a severe shock or jar of the kind given by an earthquake. This was demonstrated in the San Francisco disaster, where buildings of the old type tumbled down, while the steel frames of the modern buildings were practically intact after the earthquake and after the fire. The reason is to be found in the method of construction. The steel columns and beams were so firmly fastened together with rivets, and so strongly braced, that the whole framework was practically as stiff and rigid as a steel cage. The masonry walls were carried on the outside steel beams, and were tied to those beams with strong iron anchors at every floor. Finally, another precaution was added. Under the window sills of each storey a flat band of iron, about five inches wide and a quarter of an inch thick, was laid in the masonry and carried all the way around the whole building. This band of iron is riveted to the columns as it passes them, and acts as a horizontal support for the masonry. The whole building could actually be tipped several feet out of a vertical line without endangering its integrity.

For reasons of safety, therefore, as well as the desire to get more floor space, the owner of the prospective office building is likely to want a steel frame.

The plans made by the engineering force for the new building will now show exactly where every piece of material is to be put. When the building is completed, the thing that seems remarkable is its size. When it is being built, the thing that seems remarkable is its infinite number of small details. All these details are represented in the plans. These plans, specifications, blue prints, and documents of all sorts, multiply at an astonishing rate. If they were all brought together in the case of a building like the Cook County Building, in Chicago, and put on a scale and weighed, they would tip the beam at something like thirty tons. At this stage it is not the big work of engineering practice, but the small work, that attracts the eye. On the tables in the architects' and engineers' offices, where the plans are kept, they give a complete picture of the building, which has not yet been begun. The smallest piece of steel that goes into a column up on the fifteenth floor of the building is already in place, its exact place on the plans. The building exists completely in imagination before a single stone has been placed in the foundations.

The engineer-constructor, if he is in complete charge of the building, will now proceed to let the contract for tearing down the old building. The contractor who does the job of taking it away will make good use of all the usable materials it contains. He will have a big yard or warehouse, in which the steel, the iron, the stone, the bricks, and the other materials will be sorted out and heaped up, and sold to people who can use them. In some cases the stone from the old building is crushed on the spot and mixed with sand and cement, to make concrete to be used in the new building.

While the old building is being battered down and carted away, other contracts are being let. It was formerly customary to follow up the demolition of the old building immediately with the excavation of the space for the foundations and basements of the new building. It is now feasible, however, to do the foundation work before doing the excavating. This seems like a contradiction in ideas. But the process is comparatively simple. And it saves a great deal of trouble.

If you follow the old method and dig the big hole in the ground before you lay your foundations, you have to

support the sides of this hole with long, strong timbers, and you are constantly worried by the fear that some of these timbers may slip and break, and that the building next door, or the pavement of the street, may feel the jar and may be more or less seriously damaged.

Suppose, for instance, that the building has been torn down, and that you have proceeded to make a large excavation, you can readily see that it is necessary to take great precautions, in order to protect surrounding property from injury. Instead of taking this risk, you may, if you please, allow almost all the dirt to remain in place, and get your foundations all in before you dislodge it.

You begin by digging a trench along the sides of your lot. The sides of this trench you support with horizontal planks, which are braced apart by screw braces. Finally, when the trench has reached the desired depth of your lowest basement, you put in a concrete base at the bottom of it and install vertical steel beams all the way up the middle of it, from bottom to top, and brace these beams with jack screws set between them and the planks which still form the sides of the trench. The pressure from the street and from the earth and the buildings surrounding your lot is now transmitted across the trench through the planks and the jack screws and the steel beams, and is now successfully resisted by the big core of earth which you have left still occupying the whole centre of your lot.

You are now ready to dig the wells for your caisson foundations. At various spots on your lot—that is, wherever you intend to have a steel column for the support of your building—you begin to make a round hole. The rest of the earth on the lot remains unexcavated, just as it was. All the excavating you now do is simply for holes, which will afterwards be filled with concrete and used to support your steel columns.

The depth to which you dig these holes will depend upon the size of the building and the character of the soil. In Chicago you may choose between two different levels. One is hard pan. The other is bed rock. The first is found about sixty feet below the surface in the down-town district. The second is not reached till you have gone down one hundred and ten feet. In the case of a large building it is usually advisable to go all the way down to the second level.

As these wells are dug they are lined with heavy strips of wood, called lagging, and they are further protected by the insertion of metal rings, which keep everything steady and transmit all pressure from every side. The digging is usually done by hand, with shovel and pick, and is good, hard work, especially when the labourers get down toward bed rock. Recently, in a caisson well six feet in diameter, two men worked for eight hours and made only eight inches of progress.

When the wells have finally reached the requisite depth, they are filled with concrete to the level at which the bases of the columns are to be set. The bottom of the well has previously been somewhat enlarged, or "belled out," so as to transmit the weight of its load over a large area. The rest of the well is of the same diameter throughout.

These columns of concrete are commonly called caissons, though they do not, strictly speaking, deserve that name. The word caisson, in engineering practice, really refers to a foundation which is made under water by men who are working in a chamber filled with compressed air. Caisson disease is the disease which men get through breathing the compressed air in a chamber of that kind. Our caisson wells in Chicago are not built under compressed air at all. They are simply dug with a shovel and a pick, just in the same way in which any ordinary excavation is made.

General William Sooy Smith, a famous American engineer, recommended the use of what we now call caisson foundations, at the time when the Masonic Temple was built, twenty years ago. At that time the idea was not thought feasible. Later, however, it was tried in the Stock Exchange Building of Chicago, and it soon began to win its way into favour.

Of course, the other kind of foundation is still used. In many cases long piles are driven down into the ground and the building rests on them. Care must be taken, however, to see that the heads of the piles are driven down below the water level. Otherwise they will rot.

In other cases the foundations consist of what might be called rafts of steel beams, placed closely together, and set in concrete. These raft foundations, or floating foundations, support the columns, which in turn support the floors.

One disadvantage about pile foundations and about raft foundations is that they settle when the weight of the building is imposed upon them. It is, therefore, customary in such cases to build the first floor of the building several inches higher than it ought to be, and then wait for the

whole structure to settle down to its proper level. In some places in the down-town district of Chicago you will notice that the side-walk slopes from the building to the street. This means that the building did not settle as much as its builders thought it would. In other cases the side-walk slopes the other way. That means that the building was made heavier than was expected, and that it settled too much, so that the slope of the side-walk is toward the building from the street. Another disadvantage about raft foundations is that they take up a great deal of space. Sometimes they even extend over into the next lot under the adjoining building.

A case of this kind was once carried to the Supreme Court. It was a dispute between Mr. Field and Mr. Leiter. Mr. Field won. The court decided that he had the right to extend his foundations into Mr. Leiter's property. I was connected with the controversy in the interests of Mr. Field, and it became my duty to go to Mr. Leiter with the necessary drawings and show him exactly what we intended to do. There was to be a floating foundation, 26 feet wide, thrusting itself under the party wall and resting half on Mr. Field's property and half on Mr. Leiter's.

Mr. Leiter studied the drawings carefully for a long time, and then said: "Well, what shall I do if my neighbour on the other side should wish to perform the same kind of building operations as Mr. Field? He would want a similar foundation of the same width, 26 feet, and would naturally want thirteen feet of my land. This would make 26 feet of land that I would be obliged to furnish. Now, as I have only 25 feet, do I not run the risk of being sued for not having land enough to accommodate my neighbours?"

THE ARCHITECT'S LAMENT.

My office is painfully dismal,

I can't make the price of a crust,
I'm down in the depths, deep, abysmal,

And rapidly putting on rust:

No client comes in thro' my portal,

My latest perspective I've messed,

My friends I have fought all—I wouldn't be mortal
If I wasn't beastly depressed.

I've run very low as to collars;

My landlord is pressing for rent;

Those last most inadequate dollars

I earned, have been long ago spent.

The samples up there on my old chest

Of drawers mock my tragical plight,

They seem to suggest all the jobs that the rest

Of the fellows I know have in sight.

I've sought consolation with Bacehus

[He's vastly o'er-rated, I vow],

His after effects sometimes rack us,

I'm feeling the weight of them now:

I've tried country walks in the hazy

Soft twilight, to shake off this gloom—

The sight of a daisy just makes me feel crazy,

Oh! when will the building trade boom?

If Time could give me back my youth, I'd

Not start on the way I have come,

I vow (it's the absolute truth) I'd

Far rather have followed the drum;

Far rather have been a bold sailor

[I hope you can make that line scan],

A tinker, a tailor, or even a jailor,

Or driving a furniture van.

Oh! would that I never had wasted

The years of my life that I did,

Oh! would that I never had tasted

The dregs which in failure are hid.

I'm forced to the painful conclusion

That this architectural lay

Is all an illusion, a beastly delusion,

A vision that fadeth away!

T. SQUARE.

The building trade in England continues to be very dull, indeed, while in Dublin exceedingly few buildings are in course of erection or in contemplation, and those which are, are of no great extent. Labourers' cottages continue to be the principal projects in contemplation.

FERRO-CONCRETE FLOOR TEST IN DUBLIN.

Messrs. J. and R. Thompson, Ltd., of Belfast and Dublin, have almost completed a Ferro-Concrete (Hennebique system) Duty Free Warehouse at North Anne Street, Dublin, for Messrs. J. Jameson and Son, Ltd., and on Tuesday a number of the leading architects of Dublin and others were invited to witness the testing of a section of the floor of the new building.

Amongst those present were:—Messrs. Andrew Jameson, W. G. Jameson, and A. J. C. Mitchell, directors; F. G. Hicks, M.R.I.A.; T. M. Batchen, M.Inst., C.E.; F. E. Cairnes, engineer-in-chief, Bow Street Distillery; A. H. Hignett, engineer-in-chief, Guinness's Brewery; P. H. Stewart, G. F. Beckett, R. Donnelly, and J. Moore, A.M.I.C.E.I.

The building, which is practically of ferro-concrete construction throughout, does not present any unusual features. It was designed by Mr. F. E. Cairnes, engineer-in-chief, Bow Street Distillery, and consists of a basement and ground floor each about 13,000 feet super. in area. The roof has been constructed in the form of a tank to hold water to a depth of six inches. The main beams of the ground floor are 18 inches by 12 inches, supported on columns 12 inches by 12 inches at intervals of 24 feet. The columns supporting the roof are 8 inches by 8 inches. The tests were carried out under the supervision of Mr. G. De Vesian, representing Mr. L. G. Mouchel. The portion of the premises tested was a section of the ground floor with an area of 288 square feet, this section being carried on one of the ferro-concrete main girders (24 ft. span).

The engineer's specification required that the floor should be capable of carrying a load of 224 lbs. to the square foot. This meant a test load on the section referred to of 29 tons. For the accurate measurement of deflection, three delicate instruments were adjusted beneath the girder, one in the centre, and one at either end close to the supporting columns. Under the test load of 29 tons, the following deflections were recorded (in millimetres):—

Instruments.		
Left-hand.	Centre.	Right-hand.
.3	1.1	.25

As a further test the load was increased by 50 per cent., or a total of 43 tons, and the deflections were:—

.45	2.0	.4
.15	.15	.1

On the entire load being removed, the deflections were:—

In order that the significance of the tests may be fully appreciated, it should be mentioned that the engineer's specification required that the deflection shown should not exceed 1-600th part of span under the test, the actual deflection was only 1-3,503th part of span.

The new building is the first of its kind erected in Dublin, and it demonstrates the eminent suitability of this form of construction for the purpose for which it was designed. The wideness of the bays between the column supports is particularly noticeable, and the fact that the roof, without any special preparation, will be used as a water tank is sufficient indication of the dryness of the warehouse.

Both Mr. Cairnes and Messrs. Thompson are to be congratulated on the excellence of the work and the satisfactory completion of the tests.

Carlow.—The Board of Guardians of Carlow Union are now about proceeding with an extensive scheme of new drainage, sanitary annexes, and water supply to Carlow Workhouse, from designs prepared by their engineer, Mr. James O'Donnell, As.M.Inst.C.E., Carlow. Quantities are being prepared by Mr. Geo. Metcalfe, surveyor, College Park Chambers, Nassau Street, and tenders will shortly be invited for the work. The same Board are also about to invite tenders for the erection of a new fever pavilion to Bagnalstown Hospital, from designs prepared by Mr. O'Donnell. Quantities by Mr. Metcalfe.

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CONTENTS.

PAGE.

Topical Touches	509
The Typical Factory	510
Our Southern Letter	510
Modern Steel Buildings	513
The Architect's Lament	517
Ferro-Concrete Floor Test in Dublin	517

LEADER :—

Recent Improvements in Sewage Treatment	518
---	-----

COMMENTS :—

St. Paul's Cathedral Foundations	521
The Architectural Association of Ireland Annual Excursion	522
Building News	525
Congo Roofing	526
The Royal Institute of the Architects of Ireland	526
Reviews	526
Engineering Items	529
A New Ventilating Fan	530
English Poor Law Administration and Architecture	533
Answers to Correspondents	534
Correspondence	534
The History of a Competition	537
Imports	537
Engineering News	538
Contracts	538

RECENT IMPROVEMENTS IN SEWAGE TREATMENT.

In the whole domain of engineering there have been no such outstanding revolutions probably since, say, the first great developments in iron bridge and roof construction, or the everyday application of electric lighting and power, as have taken place during recent years in the treatment of sewage and the rapidly increasing use of ferro-concrete construction. The literature pertaining to both these subjects has been most voluminous, and has been from time to time dealt with in our columns. It may be freely admitted that in regard to ferro-concrete the French and Americans have led the way, and England has only followed at a very respectful distance. In sanitary matters she has, on the contrary, more than held her own, the improvements effected in the methods of sewage treatment since the first trials of bacterial methods being most notable. One of the chief pioneers in this work was Mr. W. J. Dibdin, formerly Chief Chemist to the London Metropolitan Board of Works. The Sanitary Publishing Company have lately issued a pamphlet by Mr. Dibdin, setting forth the most recent improvements in methods for the biological treatment of sewage.

Mr. Dibdin's energies in the earlier days were largely directed towards overcoming the sludge difficulty, and perhaps somewhat extravagant claims were then put forward in respect of his investigations and discoveries, as well as those of other workers; the fact remains that, although the sludge difficulty has not been wholly got rid of, and still remains a problem, it has been so enormously simplified that the sewage treatment question is a very different one from what it was in the days of chemical precipitation or simple irrigation.

In his pamphlet Mr. Dibdin briefly sketches the earlier development of bacterial methods. Mr. Dibdin claims that the earliest practical application of bacterial methods was by himself in connection with the sewage of London,

at Barking Creek, about a dozen miles below London Bridge. It will be remembered the sewage of London formerly went directly into the Thames at various points, creating much nuisance, and a system of intercepting sewers constituting the London main drainage system, was devised by the late Sir Joseph Bazalgette. This system had two outfalls at Barking Creek and Crossness respectively. Here Mr. Dibdin experimented, and the results of his earlier work are well-known. In America the Massachusetts State Board of Health conducted many experiments, but it was Mr. Dibdin who first did practical work, followed later by the introduction of the "Septic Tank," and the sprinkling beds; Messrs. Cameron, Comyn, and Martin, at Exeter, developing what was then known as the "Exeter System," consisting of tanks and contact beds.

In dealing with recent developments, Mr. Dibdin observes that sprinkler or contact beds cannot be used without preliminary tank treatment; otherwise choking takes place.

In the various systems hitherto devised, the combination of tank and filter implied aerobic and anaerobic action; none of the systems solved the problem of the inoffensive disposition of the sludge, reduced in volume as it was.

The first controversial point Mr. Dibdin touches upon is the contention that preliminary anaerobic action, *i.e.*, bacterial culture in the absence of air, is essential—he says the experience with London sewage clearly indicates the fallacy of anaerobic action being necessary to effective disposal. The sewage of London was at a later period relieved of the grosser solids by chemical precipitation. Thus relieved, the sewage became again subject to the aerobic influences in the river.

The result of Mr. Dibdin's study of the whole question is that he now holds that it has been demonstrated that anaerobic action is not essential, and that we may now "safely turn our attention to the most efficient and economical method of purification on wholly aerobic lines."

It is true, Mr. Dibdin goes on to observe, that there is no difficulty in obtaining effluents of excellent character by final treatment of sewage in either contact beds or trickling filters, and by either method or various modifications the final work may be equally well accomplished. The great desideratum is, however, an equally simple and effective method of primary treatment of the raw sewage as will effectually and economically meet the sludge difficulty.

In 1892, when the first bacterial installation was established by the London County Council, the sludge was first removed from the sewage by preliminary treatment with lime and iron, followed by sedimentation in tanks. The result of Mr. Dibdin's introducing a "coarse bed" treatment as a preliminary to the second or fine bed treatment at Sutton, was that the sludge was no longer the foul abomination it once was, as the effluent was fit for treatment on land, or if again filtered, for discharge into any inland stream. The difficulty, however, was the choking up of the bed where the crude sewage was turned on to it.

The adoption of a grit or detritus tank has been very successful in prolonging the life of the filter, while the "septic" tank, says Mr. Dibdin, is undoubtedly effective. Unfortunately sludge still remains to be dealt with, and Mr. Dibdin considers that it is better to prevent the sewage undergoing putrefaction before it is turned upon the filters, and that it should be collected and treated in as fresh a state as possible. Mr. Dibdin satisfactorily explains one point—which hitherto was very obscure, namely, how it is that from a tank alone a good effluent is sometimes obtained by his statement—that where sewage is sufficiently dilute the aerobic organisms can perform their functions satisfactorily, but that where the sewage is too strong, or is kept too long in the tank, the purely anaerobic bacteria gain the upper hand with unpleasant consequences; Mr. Dibdin's deduction thus being that the good results are due to aerobic organisms and the bad to anaerobic conditions. These conclusions would seem to point to the desirability of great care in determining the size of the tanks, and the length of the stay of the sewage therein. While, if he be correct, it is obvious that dilution must play

an important part in determining the precise conditions of treatment to be adopted in any given case.

Putting into practice all the results of his long experience and experiments on sewage, Mr. Dibdin has decided that primary slate beds best fulfil the objects to be attained, and he gives a number of instances where such beds are working successfully.

At Devizes an experimental slate bed was tried for eighteen months; waste slate *debris* was used, and the slates varied in size from 1 to 3 feet super. The slates are supported by small slate blocks placed so as to keep them about an inch apart; this arrangement gives no less than 87 per cent. water capacity to each bed. The results of the experiment were most satisfactory. The beds were put into action on September 12th, 1905, and continue to deal with the sewage *unscreened* and *unsedimented*. Similar beds exist at Trowbridge, High Wycombe, Maldon and Coombe.

Mr. Dibdin then states that *the only conclusion* that can be drawn from these various experiments is that the slate bed treatment is not only effective, but superior to any known method for dealing with the sludge problem, and preparing the liquid for secondary treatment by one of the various methods now practised. Needless to say this method is very cheap. As a subsequent treatment, Mr. Dibdin personally prefers fine contact beds.

Mr. Dibdin claims for slate beds that both surfaces of the slate are available for contact, and that they possess the great advantage of being readily cleaned by hosing. After certain of the beds had been in use for fourteen months, being charged twice a day, the capacity of the slate bed was measured, when it was found to hold 50 per cent. of the original cube contents; it was then roughly flushed out, when the capacity rose to 64 per cent. Some of the slates at the sides were then removed in order to allow the remainder of the slates to be flushed with a hose, which so thoroughly cleansed the slates that the water capacity rose to 82 per cent.

With regard to the discharge of sewage direct into the sea, Mr. Dibdin observes that it is obvious that the preliminary breaking up of solids is an immense improvement on the common custom of sending it out with all the solids, to form offensive deposits on the shore. In one case Mr. Dibdin found the whole foreshore for a considerable distance at low water reeking with sulphuretted hydrogen, and the rocks covered with sewage fungus, whilst *bacillus coli communis* was abundant in all samples collected. Such a state of things could not have occurred had there been preliminary treatment.

It is evident that if Mr. Dibdin's conclusions are all accurate, and capable of general application, that a further important step in sewage treatment has been made.

COMMENTS.

St. Paul's Cathedral Foundations.

The *Daily Mail* has, for some time past, had its columns filled with various speculations as to the cause of the present somewhat unsatisfactory condition of the foundations of St. Paul's Cathedral, London. So much public attention was brought about by a proposal of the London Corporation to run a large sewer, some forty feet below the surface, and a distance of forty-five feet from the building. This proposal caused an outburst of criticism, some contending that the construction of this sewer, if persisted in, would endanger the stability of the entire structure. The Corporation engineers stoutly held that no such danger could possibly arise through tunnelling at that depth, and at a sufficient distance away. Independent engineers were consulted by the Cathedral authorities, and they saw no reason to seriously differ from the opinion expressed by the Corporation engineers, but a committee of well-known London architects, who had been also consulted by the Chapter on the advice of the Cathedral architect, Mr. Mervyn MacCartney, drew up a report absolutely condemning the construction of the sewer, it being declared that the Cathedral foundations were

in a "sensitive" state, and that the proposed tunnelling would seriously endanger them. We commented upon the matter at the time, pointing out that no valid reasons were given in support of this startling opinion, and that it seemed to us that the signatories of the report could not have had practical experience of the methods used in modern tunnelling operations, tunnelling being now universally adopted in work at that depth. Yielding to pressure, we understand the Corporation agreed to another route for the sewer, and a tube railway project has likewise been abandoned.

Hitherto it has been believed that whatever sinking occurred was due to the draining of the gravel subsoil through the construction of buildings, and such works as the underground railway.

Mr. G. C. Churchward, M.I.C.E., now propounds quite a different theory, and the proprietors of the *Daily Mail* have obtained facilities for making borings, with a view to testing the accuracy of Mr. Churchward's opinions.

Mr. Churchward himself thus puts forward his theory in an article to the *Daily Mail*:—

If a careful study is made of the peculiar topographical position of St. Paul's Cathedral in relation to the Thames, only three hundred yards distant, with the bed of its channel 76 feet below the brow of the hill on which the south face of the building is situated, it will be seen how the river narrows and forms an angle at Paul Stairs, and how the bank is washed by the swift current of the ebb tide, enhanced by the broad sweep of the Thames Embankment ending at Blackfriars Bridge. Established facts taken in conjunction with the above conditions reveal the true cause of the "sensitive" state of the structure, which appears to have entirely escaped observation.

Messrs. John Britton, F.S.A., and Augustin Pugin, architect, in their work, "Illustrations of Public Buildings of London," 1825, thus describe their examination of the foundations:—"The foundations of the structure stand upon hard pot earth, the stratum of which on the north side was discovered to be 6 feet thick and upwards, but on the south side not more than 4 feet; immediately under it lies sand of considerable depth." They give an excellent comparative plan of the ancient and present cathedrals, and add: "As the old cathedral had rested securely on pot earth, the architect concluded with great good sense that his building might be trusted without fear to the same bottom that had borne the old one. The result has proved that he was not mistaken."

From the above, seismic disturbances, as a cause, may be dismissed. The structure was intact in 1825, and earthquakes were more frequent and equally as violent in the 150 years the building had stood than in the eighty-two years that have elapsed since. The comparative plan reveals the fact that the foundation of the three portions of the building that have shown the most significant weakness are the only portions of Sir Christopher Wren's St. Paul's that are not built over or contiguous to the foundations of the ancient cathedral and cloisters consolidated by centuries of age.

Dredging, which has gone on for many generations, has lowered the bed of the river considerably, in parts reaching a depth of 36 feet below Trinity high-water mark.

The ridge of earth upon which the South-West Tower stands is only four feet thick. Under this is a stratum of sand which, according to Mr. Churchward, follows practically the natural contour down to the river-bed. Here, then, says he:—

With the sand stratum following the surface contour to a depth of about 40 feet, from the apex down to the river, and the natural impervious bed of the river gone, millions of tons of water penetrate under the foundations of the cathedral twice daily with the rising tides, and as often pass out with the receding tides, sucking out the sand from between the flints and pebbles, or, settling it, causes it to silt up in the channel, which must be kept open for navigation at low water; and so the process goes on, accelerated by veins of quick or running sand, if they exist, as found on the south bank of the river, or by higher tides and deeper dredging. The sand stratum thus cut into refuses to lie at any other than its natural slope, and sand behind it runs down to make good the slope removed, and thus the highest point of the stratum settles; and the 4 feet of pot earth stratum on which the massive structure stands gives way with the vacuum caused by the running away of "the sands of time" from beneath it, and thus creates the "sensitive condition" of the structure.

It is somewhat premature to pass judgment on Mr. Churchward's theories, but it seems to us that they possess considerable elements of probability, and at least offer a scientific explanation of what has occurred. Professedly agreeing with the advice of the Committee of Architects, Mr. Churchward's statement differs from theirs, in that it not only offers, as we have said, an explanation, but suggests a remedy consisting of:—

A river wall 410 yds. long and 50 ft. in depth, well founded in the solid London clay stratum, between the abutments of Blackfriars and Southwark Bridges, carried out in line and level of the half-time barge berths in front of the warehouses (the barge berths to have their lower beds lined with a very thick layer of clay puddle), as a retaining wall, would effectually stop all leakage of the sand stratum. The river would not be reduced an inch in breadth, and dredging operations could be carried on without detriment to any of the buildings on the south bank, so protected.

These measures possess the merit of simplicity, permanence, and, having regard to the issues involved, should not be prohibitive in cost. If the theory is accurate, the remedy proposed ought to be effective. The making of the trial borings should afford an answer at any moment to the questions raised.



THE ARCHITECTURAL ASSOCIATION OF IRELAND ANNUAL EXCURSION.

On Tuesday, 16th inst., a party of thirteen members (increased to fourteen at Birmingham) assembled on board the City of Dublin Steampacket Company's s.s. "Cork," bound for Liverpool, the party being *en route* for Warwick, the centre for this year's excursion of the A.A.I. The majority of those present belonged to the section known as "the younger members," and a lively party they were. The numbers were very satisfactory, being the record for long-distance excursions of the A.A.I.

After a calm and prosperous voyage the good ship "Cork" rode at her moorings (is not that the correct term?) in the Canada Docks, Liverpool, and after the usual scramble for baggage, the most of the party were ashore and stowed in cabs; two or three, however, were left asleep in their bunks, and only rejoined later in the day at Birmingham.

A run of a couple of hours brought us to Birmingham, where all present voted for Aston Hall as the first item on the programme.

Aston Hall is the ancient seat of the Holts. The Holt family can trace their descent back to the thirteenth century. In 1612, Thomas Holt, who built Aston Hall, was created a baronet by James I., who, the previous year, had instituted the order of baronets. For his services in the suppression of the Rebellion in Ireland, Thomas Holt was permitted to quarter "the red hand" of Ulster on coat of arms. He began to build Aston Hall in 1618, but did not finish it until 1635. In the Cromwellian Rebellion the citizens of Birmingham, like the Lord Brooke of Warwick of the day, took the side of the Commonwealth, but Thomas Holt remained loyal to the King, whom he entertained at Aston in 1642. The following year the Parliamentarians attacked Aston Hall, and it had to surrender after a siege of which it still bears the marks. Thomas Holt paid for his loyalty by imprisonment, confiscation of his household goods, and the decimation of his estates.

In 1858 Queen Victoria opened the Hall as a public museum, the building having been bought by the Corporation of Birmingham for that purpose, and the park now forms one of the chief "lungs" of Birmingham. The hall itself is a fine old example of the larger Jacobean mansions. It is not known who was the original designer, but it is after the manner of John Thorpe, though it is hardly like his own work. In general conception it bears a considerable likeness to other houses of the period, such as Montacute and Hatfield. It has, especially with its present surroundings, none of the great charm of Montacute, but is distinctly like Hatfield, especially in the great hall, the great gallery, and the grand staircase; but the detail generally is poor, excepting the mantelpieces and the staircase.

Arrived at Warwick on Wednesday evening, the party, after a brief run round the town, proceeded to the Hill House, the headquarters, a fine house just outside the town, standing in its own grounds, overlooking the Warwick

racecourse, where they found themselves most admirably lodged.

The fine old Leicester Hospital, St. John's House, and the fine Parish Church of St. Mary, with its far-famed Beauchamp Chapel, were all visited—as well as many interesting old houses in the town.

Later the party were most hospitably entertained at afternoon tea by Mr. Frederick Moore, A.R.I.B.A., who had been most kind in helping Mr. Bradbury with his wide local knowledge in arranging the visits. After the work and toil of the earlier part of the day, Mr. Moore's hospitality was highly appreciated. Subsequently the party scattered, some going through the town, others devoting themselves to sketching picturesque Mill Street and Bridge End.

Thursday was devoted to Coventry, and was a delightful day. The famous churches—the grand St. Michael's, with its noble tower and spire, 305 feet in height (the church itself being 300 feet long inside), Christ's Church, Trinity Church, and St. John's Church—were in turn visited; the latter, a finely proportioned late mediæval church, with a very beautiful clerestorey, is at present undergoing restoration. Ford's Hospital, Bond's Hospital, St. Mary's Hall, Butcher Row, and the other delightful bits that Coventry abounds in were all seen. So much was to be seen on Wednesday and Thursday that there was but little time for sketching; indeed, few seemed that way inclined.

On Friday morning Stratford-on-Avon was the *locus in quo*. The chief sights, the Church of the Holy Trinity, Grammar School, Shakespeare's House, the Memorial Theatre, and Ann Hathaway's Cottage were visited. The church is the chief item of interest, and was described in the last issue of the IRISH BUILDER.

Returning to Warwick in the afternoon, the chief item on the programme was the Castle, the seat of the Earl of Warwick, to see which the Association had special facilities. This splendid example of a mediæval castle has been a good deal modernised, the earlier restorations in the beginning of last century not being in the best of taste; but the interior is full of interest, while the park and gardens are exceptionally beautiful; from the Castle balconies some of the views of the Avon, which flows quietly by its walls, are exquisite. The older portions of the present Castle date from 1377. "Guy's Tower," built by the famous Guy, Earl of Warwick, is an imposing structure, with its twelve sides, and its walls ten feet thick, is 100 feet high over the ground, and 128 over the bed of the dry ditch. (Warwick Castle was defended by a dry moate.) It was built in 1394, at a cost of £1,394 5s. 2d. Most of the party ascended to the top of the tower, which involves climbing about 135 steps. Arrived at the top, tired and panting, one is rewarded by a magnificent panoramic view of the surrounding counties.

Space does not permit us to describe the interior of the castle, with its fine suites of rooms. Here, including the world-famed portrait of Charles I., are many fine pictures by Vandyck; and examples of Jansens, Romney, Murillo, Sir Peter Lely, Ludovico Carracci, Rubens, Teniers the younger, Hans Holbein, Gerard-Dow, Paul Veronese, Lucas Cranach, and many of the great masters, as well as by lesser-known artists.

Saturday morning was devoted to Kenilworth; that historic building, the earliest parts dating from Norman times, is so well known as to need but little description. A pleasant forenoon was spent amid the fine old ruins, and in sketching the picturesque half-timbered stables, a most delightful bit of colour. At two o'clock the party started for home. Liverpool was reached in the evening, and Sunday morning found the party back in Dublin after another voyage over a sea smooth as a mill-pond, well satisfied with the week's outing.

The highest praise is due to Mr. Bradbury for the excellent arrangements he made, particularly for his good fortune in lighting on the Hill House as headquarters. Here all found themselves in a moment absolutely at home, their creature comforts being most excellently well looked after. All too soon a most pleasant trip came to an end.



The fines upon contractors in the Omagh Rural District in connection with labourers' cottages built under the last improvement scheme amount to £307, more than the contract price of two cottages.

On the 2nd August the Corporation of Dublin will consider tenders for building a new Public Library at Great Brunswick Street, from the designs of the City Architect. Quantities may be obtained at the office of the City Treasurer, Municipal Buildings.



Bundoran.—Tenders have been invited for the building of a new female orphanage at Bundoran (not additions to, as stated in last issue). Mr. Thomas F. McNamara, 50 Dawson Street, is the architect. Bills of quantities have been prepared by Mr. D. W. Morris, 68 Harcourt Street, Dublin.

Baltimore.—Tenders are invited for the carrying out of alterations and repairs to the Rectory, Baltimore.

Cork.—Tenders for erecting and furnishing an extension to the Biological Laboratory, Queen's College, Cork, will be received on the 31st July by the Board of Public Works.

Belturbet.—A new Bank of Ireland building has recently been erected in Lower Bridge Street, Belturbet. The style of building, which is one storied, with flat roof, is principally Grecian, and built of brick, having an impressive 'acadie' of cut stone dressings standing out in bold relief. The internal apartments are capacious, and comprise the public office, the floor of which is inlaid with marble mosaic work, with circular polished mahogany counters, having recesses for the accommodation of the officials in transaction of business with the public. The arrangement for the ventilation is attended to with the utmost care. Heating appliances in the shape of radiators are also added, and during winter time these will be fed from the boiler-house at rere. An agent's room, with French folding windows, is provided on same floor, close to which is the strong room, specially designed and erected in solid concrete on steel girders. It is fitted up with Milner's powder-proof safe, and a massive door, weighing 33½ cwt., guards the entrance. There is also a lavatory and w.c. of the latest and most approved style. A neat iron railing is erected around the front entrance. The entire cost of the building is about £2,000. Messrs. Millar and Symes, Dublin, architects to the Bank of Ireland, were responsible for the design. The contractors were Messrs. J. and P. Good, Brunswick Street, Dublin.

Carrickmacross.—At a meeting of the Carrickmacross Urban Council tenders for the position of town surveyor were considered. Only three tenders had been received, viz., Mr. Charles Chute, C.E., Dundalk; Mr. Patrick Duffy, Carrickmacross, and Mr. Wm. Wilson, C.E., Ballymackney. Mr. Duffy requested that consideration of tenders be adjourned until next meeting, when he hoped to have satisfied the Local Government Board as to his competency for the position. Mr. Daly said to give him a chance. Mr. M'Mahon also approved of the idea, and on the motion of Mr. Daly, seconded by Mr. White, the tenders were adjourned until next meeting. It was also ordered that no other tenders be received.

Donemana.—Tenders have been received for the erection of a Masonic Hall in Donemana.

Dublin.—The Public Libraries Committee of the Corporation of Dublin invite tenders for the erection of a Public Library at Great Brunswick Street, in accordance with plans, specifications, and conditions of contract prepared by the City Architect, which may be inspected daily (except on Saturdays) at his office, Municipal Buildings, Cork Hill, Dublin, between the hours of 11 a.m. and 4 p.m. No tender will be entertained which is not on the prescribed form. Copies of bills of quantities and forms of tender may be obtained at the office of the City Treasurer, Municipal Buildings, Cork Hill, Dublin, on payment of £2 (two pounds), which will be returned to contractors who submit *bona fide* tenders. Tenders must be accompanied by the priced bills of quantities (priced in ink), and must also contain the names of two solvent sureties willing to be bound, severally, with the contractor in a sum of £2,000 each for the due fulfilment of the contract. Tenders to be lodged on 2nd August.

Messrs. Crompton Bros., Hammersmith Works, Dublin, are at present making alterations at the premises of Messrs. Curwen, 3a Nassau Street, Dublin.

The Dublin Medical Mission premises, in Charles Street, are being rebuilt. The present contract provides a large hall for meetings, etc., four consulting rooms, besides caretaker's rooms and other offices. This is only the first section of the works, and it is intended as soon as possible after its completion to also rebuild the Chancery Place premises,

which will include dispensary, committee rooms, offices, and apartments for matron, nurses, etc. The present works are being carried out by Messrs. J. and P. Good, Ltd., Great Brunswick Street, from designs and under the superintendence of Mr. Geo. P. Beater, M.R.I.A.I., 17 Lower Sackville Street, Dublin.

Some much-needed improvements and enlargements to the premises of the Prison Gate Missions, Blackhall Place, Dublin, are in course of construction, which will give much-needed increased bath-room and lavatory accommodation for the staff. The works are being carried out by Mr. B. W. Whyte, contractor, of Summerhill, from designs and under the superintendence of Mr. Geo. P. Beater, M.R.I.A.I., 17 Lower Sackville Street, Dublin.

The Commissioners of Irish Lights are open to receive tenders from competent contractors for the erection of one block for four dwellings, with store, office, ladder-shed, asphalt and boundary walls at Haven Island, Skerries, Co. Dublin (a preliminary notice of which appeared in our columns some months ago); one block of three dwellings, with store, office, ladder-shed, and boundary wall at Askeaton, Co. Limerick; one block of two dwellings, with store, office, and alteration to quay at Rockisland, Skibbereen, Co. Cork, according to plans and specifications, which can be seen at Engineer's Office, D'Olier Street, Dublin.

Mr. Benjamin Millard, Pleasants Street, has obtained the contract for additions to the St. Kevin Schools, Grantham Street, according to plans and specifications of Messrs. W. H. Byrne, and Son, Suffolk Street, Dublin.

Dundalk.—Tenders are invited for building a dwelling-house for Mr. John Hughes, of Quay Street, at Point Road, Dundalk. Tenders are to be lodged on to-day (27th inst.). Mr. John F. M'Gahan, Roden Place, Dundalk, is the architect.

Kilbarry.—Repairs are about to be undertaken at Kilbarry Parish Church, and tenders are invited to 29th inst. by the Rev. Father Gallagher, P.P. Plans and specification can be seen at the Parochial House, Orristown, Kells.

Killala.—Labourers (Ireland) Acts, 1883 to 1906.—The Killala Rural District Council have made an improvement scheme in pursuance of the above Acts. The estimated cost of the scheme is £17,450 10s.

Kilcormac.—The opening and dedication of the new addition, apse, marble altar and rails, stained glass windows, etc., will take place 28th inst. in Kilcormac.

Loughrea.—The Rural District Council invite tenders for building fifteen single labourers' cottages in the town of Loughrea, in accordance with the L.G.B. Design "A" Cottage. Tenders will be considered to-day (Saturday).

Louth.—At a meeting of the Louth Rural Council Mr. L. Turley, C.E., architect to the Council, wrote applying for an increase of salary, as the present salary he received—£25 per year—was only sufficient to keep him in car hire. The Chairman asked was it a bonus or an increase that Mr. Turley applied for. Mr. Turley said a bonus was not much good to him. At his present salary he was unable to carry out the work to his own satisfaction, as all the money was absorbed in car hire. Mr. Murphy thought the best way to deal with the matter would be to appoint a small committee to consider it. No doubt Mr. Turley would have a lot of increased work when the present scheme was started, and he considered that £25 a year was a rather small sum to carry out his duties on. Mr. Maguire concurred, and the suggestion was unanimously agreed to.

Limerick.—Tenders are invited for the building of a new hall and business premises in Cecil Street and Henry Street, Limerick, for St. Michael's Temperance Society, in accordance with the drawings and specification prepared by Brian E. F. Sheehy, architect, 57 George Street, Limerick. Further particulars will be found in our advertising columns.

Meath.—The Joint Committee of Management of the Meath County Infirmary will on 29th July consider tenders for repairs and alterations in the operation theatre.

Mullingar.—Labourers (Ireland) Acts, 1883 to 1906.—The District Council of the above Rural District have lodged with the Local Government Board for Ireland an application for an Order confirming an improvement scheme made by them under the above Acts, at an estimated cost of £115,110. Mr. Max S. Green, Inspector of the Local Government Board for Ireland, has been appointed by that Board to hold a local inquiry, which will be held on the 30th July.

Rathdowney.—Messrs. Richard Williams and Sons, of Rathdowney, Queen's County, are carrying out extensive alterations at their business premises, and also at the Commercial Hotel, Rathdowney. Mr. Edwin Bradbury, of Nassau Street, Dublin, is the architect, and the works are being carried out by Mr. Wm. Beckett.

Rathdown.—The Council of the Rural District have lodged with the Local Government Board for Ireland an application for an order confirming an improvement scheme made by them under the Labourers' Acts. Mr. Richard

Kelly, Inspector of the Local Government Board for Ireland, has been appointed by that Board to hold a local inquiry, which will be held on the 1st day of August and subsequent days. Mr. Kelly will enquire into the scheme for building 70 cottages in the No. 2 district on 7th August and subsequent days.

Sion Mills.—As will be seen from an announcement in our advertising columns, tenders are invited for the erection of a church at Sion Mills, Co. Tyrone, in accordance with plans, etc., prepared by Messrs. W. F. Unsworth, F.R.I.B.A., and Son, Petersfield, England.

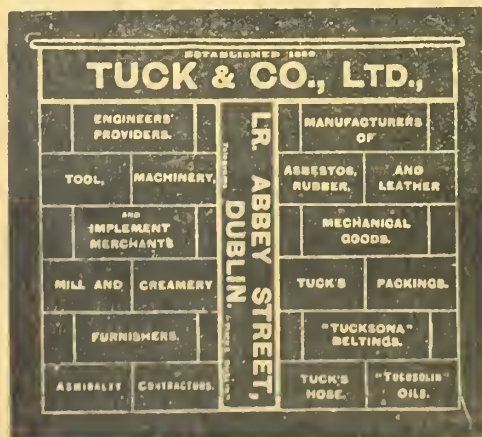
Westport.—Labourers (Ireland) Acts, 1883 to 1906.—The Westport Rural District Council have made an improvement scheme in pursuance of the above Acts. The estimated cost of the scheme is £20,431 7s.

"KARSONITE."

Messrs. Carson, of 22 Bachelor's Walk, Dublin, have introduced a new white distemper—"Karsonite"—suitable for ceilings, walls, factories, workshops, etc. Amongst the advantages claimed for this form of distemper is that it only requires to be mixed with cold water, and is ready for use in thirty minutes; it can be applied over any other kind of distemper and on any surface. We had an opportunity recently of trying a sample of "Karsonite," applying it on an ordinary whitewashed surface without previous washing of the wall. The results were very satisfactory, the distemper drying out clean and smooth. It had a good covering capacity, and showed no indication of rubbing off. "Karsonite" is moderate in price, and should become popular.

CONGO ROOFING.

We have been favoured with descriptive particulars and a book of samples of Congo Roofing, which has now been well introduced on the British market. This material, which is the result of many years of practical experience, is made by the Barrett Manufacturing Co., Spencer House, South Place, London, E.C. It is of a uniform slate-grey colour, and looks and feels like rubber. It is as impervious to moisture as rubber, with which, however, it must not be confounded, as it will outlast the best of rubber. Congo Roofing is manufactured from the highest gums and saturating material (instead of cheaper asphalt, rubber, and similar substances of but limited endurance and efficiency.) It has for its base a strong woollen felt, into which the Congo composition is thoroughly incorporated by means of special machinery that forces it into the pores, completely saturating and cooling every fibre, after which a wearing surface is applied and thoroughly amalgamated to both sides of the roofing. The resulting material is a tough, flexible, rubbery fabric that has great resisting powers against moisture and oxidising influences, much superior to rubber, which will granulate and go to pieces in a comparatively short time. Congo Roofing is adapted to covering all classes of buildings, and makes an ideal roof, easy to apply, no skilled labour being necessary. It is acid, steam, and alkali proof, storm-resisting, practically everlasting, and is not affected by atmosphere or climatic changes. The samples which have been submitted to us comprise all four thicknesses in which Congo Roofing is manufactured, and they comply with the specifications published by the makers, from whom full particulars can be obtained at the above-noted address.



THE ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

A special Council meeting was held at 20 Lincoln Place, Dublin, on the 23rd inst., in connection with the competition for the proposed Consumption Sanatorium for the County Cork Joint Hospital Board. Mr. W. M. Mitchell, President, occupied the chair, and there were also present:—Sir Thomas Drew, Messrs. G. C. Ashlin, H. Allberry, J. Holloway, G. P. Sheridan, A. E. Murray, R. C. Orpen, C. H. Ashworth, C. A. Owen, F. G. Hicks, and J. H. Webb, Hon. Secretary.

The President having explained the situation which had arisen with regard to the appointment of an assessor, the following resolution was passed unanimously:—

"The Council desires to place on record its opinion that when the conditions governing any architectural competition have been brought before the Council, and it has felt compelled, in the interests of its members and the public good, to condemn such conditions as inequitable, and has notified the members of such condemnation, any action of a member of this Institute in acting as assessor, competing, or in any way countenancing the conditions of competitions which the Council has already condemned, is hostile to the best interests of the profession."

The President read a letter he had received from the Secretary of the Royal Institute of British Architects, thanking the Irish Institute for the assistance given to the British Institute during the recent examinations.

REVIEW.

Public Libraries.*

Mr. Batsford has lately brought out a much-needed work on public libraries, by Mr. A. L. Champneys, a son of Mr. Basil Champneys, the well-known architect, and himself a most graceful writer, whose charming life of Coventry Patmore marked him as distinctly possessed of the quality that goes to make up the literary skill. The present work, which is, we believe, the first literary effort of its author, has many points of merit. So far as we know Mr. Champneys has not had much special experience of Library planning, but the book is, nevertheless, a very useful contribution. There are, practically speaking, no works of any considerable extent dealing with Library planning, so that Mr. Champneys' effort is most opportune. It is fairly comprehensive, but although the author is to be commended for excluding much irrelevant matter such as finds place in only too many text books, still he might with advantage have found space for even more examples of planning than he has—these, so far as they go, are admirable.

The book contains the latest ideas in Library planning, and is very explicit on the subject of fittings and furniture, amongst the most important details in a library.

The contents are well arranged and satisfactorily indexed—by the way, it is gratifying to observe the growing attention in modern text books paid to indexing or classification, without which a text book is nearly worthless: in fact no latter-day writer would offer to his readers the faulty and perplexing statement that a few generations ago did duty for an index.

Mr. Champneys deals with materials and construction, lighting, heating, ventilating, etc.

The classification of the rooms is described, and the subject illustrated by plans and photographs, the former all drawn to a uniform scale. Questions of finance and choice of site are not omitted.

The libraries illustrated include many well-known and recent examples, such as those at Islington, Hackney, Chelsea, Kettering, Wakefield, Kingston, Brockley, etc., designed by eminent architects, among whom may be mentioned Messrs. H. T. Hare, F.R.I.B.A.; J. M. Brydon, F.R.I.B.A.; Alfred Cox, F.R.I.B.A.; Goddard and Son; A. L. Guy, F.R.I.B.A. A number of examples from America are also given.

In addition to the plans, photographs or perspectives and interior views are frequently given. The fittings and furniture illustrated include examples from public libraries at Hornsley, Hammersmith, Kensington, Sheffield, Eastborne, etc. The number of libraries about to be built has been of late greatly stimulated by the donations of Mr. Carnegie, and to all architects engaged in their design, or in competitions, Mr. Champneys' book should be very welcome, and we can thoroughly recommend it to the students. The price is 12s.

* "Public Libraries," by Amain L. Champneys. London: B. T. Batsford, 94 High Holborn. Price, 12s. 6d. net.

ENGINEERING SECTION.

ITEMS.

His Majesty's visit to our shores has terminated, and he, of all men, can appreciate to a nicety the welcome which was so warmly tendered him during his short stay. The Urban Authorities of Kingstown are to be congratulated on the display made by the Township; it would be difficult to imagine a prettier sight than the illuminated buildings and harbour offered when dusk had fallen, and the attendant cruisers, outlined with lamps from stem to stern, had added their contribution to the general effect. His Majesty, on leaving our premier harbour, went straight to Cardiff, where, amidst unparalleled enthusiasm, he opened a new dock, which has been formed to keep pace with the ever-growing trade of the port. And it may well be that a comparison between the Irish and Welsh functions was formed by the King as by many of his subjects. In Ireland, the visit to the Exhibition undoubtedly proved that in recent years the Industrial Revival has already borne much fruit, for no thinking person could make a close inspection of the Irish Industrial Section without being encouraged by the magnificent display of exhibits in which the highest forms of art and most painstaking craftsmanship go hand in hand. The Machinery Hall is also a demonstration of the achievements of Irish engineering; and, what is most stimulating, there is no slovenliness in regard to detail, all is well planned and carefully executed. The day of those who talk much and do little is nearly over, their audience is a rapidly diminishing quantity; and the "Sinn Fein" policy, leaving debateable political questions on one side, is undoubtedly affording great impetus to a self-reliant industrial revival, which may eventually achieve a large measure of success, in spite of our lack of natural resources, such as have made Cardiff the chief city of the Principality. It may, therefore, happen that while the Irish International Exhibition can rightly be considered a visible sign of the adolescence of our industrial revival, so, in years to come, the opening of new docks and other necessities of prosperous trade will form a monument to its maturity.

* * * *

Those concerned in the design and erection of the Machinery Hall were paid a richly-deserved compliment during the recent spell of hot weather, when a visitor was overheard to remark that the hall was "the coolest place in the Exhibition." Steam boilers, gas engines, and whirling machinery are not usually associated with coolness, and the Acme natural system of ventilation adopted in the Palace of Mechanical Arts, and elsewhere throughout the Exhibition, has once more proved its efficacy.

* * * *

The General Purposes Committee of the London County Council recently received a deputation with regard to the urgent need for the establishment of a Traffic Board for London, as recommended in the report of the Royal Commission on London Traffic. The matter was subsequently considered by the Committee and a report presented to the County Council, in which it is proposed that a deputation should wait upon the Prime Minister to ask the Government to take the necessary steps to appoint a central traffic authority. Such a request would undoubtedly meet with favourable consideration, as the President of the Board of Trade, when opening the Hampstead and Charing Cross Railway, stated that the Government were agreed as to the urgency of the problem. The growth of traffic in recent years in the English metropolis has been so vast, and conditions have so changed owing to the introduction of motor vehicles, that the question becomes more difficult and complex month by month, and will shortly reach a stage at which new regulations will have to be introduced. A Board such as that proposed by the Royal Commission would serve a most useful purpose, and its reports and methods would prove of assistance to authorities in smaller cities throughout the Kingdom, where traffic difficulties have also to be faced.

* * * *

The chief inconvenience in Dublin traffic is that of noise, and the electric tram service has in great measure contributed to this trouble. Formerly heavy traffic kept to the main thoroughfares, moved slowly, and occasioned annoyance chiefly in the mercantile quarters of the city. But the introduction of a fast and numerous service of electric cars, many of which pass through narrow streets, has caused a redistribution of the traffic, and the increase

in the number of policemen on point duty is evidence of its growing complexity. Heavy vehicles are latterly being driven through bye-streets, on the principle that the longer way round is the shorter way home, and residential thoroughfares are now being traversed by springless carts rapidly jolting over their uneven pavements. Dublin is undoubtedly entitled to rank high as a city with fine buildings and charming environs, but, for its size, it is undoubtedly pre-eminent in regard to noise. This is due to the formation and condition of the roadways, and to the fact that, while the vehicular traffic is heavy, it is not sufficiently so to retard its speed, as is the case in the congested parts of London, Liverpool, Birmingham, and similar cities. There is also no attention paid to the prevention of other street noises. Therefore, the unfortunate Dublin citizen has ever in his ears a hideous combination of the whirr and elanging bell of the electric car, the buzz and hoot of the motor, varied by the brain-racking intermittent explosion of the motor cycle, the rattle of the market carts and floats, the lowing of many droves of cattle, and the ever-constant clatter of the car horse, passing over granite sett surfaces, mostly ill-laid. Add to this the din of the piano-organ, the cries of the newsboy, and the hollow rattle of the empty milk can on the area railing, and one can no longer wonder at the Dublin death-rate, but can only marvel it is no higher. The responsible officials take little cognisance of the present scandalous state of affairs, and beyond an occasional letter in the public Press, the citizen endeavours to grin and bear it. Wood block paving is laid down sparsely as if it were a rare and valuable material, and then only, as a rule, when some local monetary assistance is forthcoming. It is high time that the traffic question of Dublin was considered, and the city rendered a little less intolerable to those who cannot escape to the comparative Utopia of "living down the line."

* * * *

We have from time to time called attention in these columns to the serious denudation of timber which is occurring throughout Ireland, and to which the Land Purchase Acts have only given impetus. The landlord endeavours to realise on his timber before selling his land, the tenants convert his forest trees into hard cash at the first convenient opportunity. It is not surprising to learn, therefore, in answer to a recent question in the House of Commons, that the area under wood in this country is decreasing to the extent of about 800 acres yearly. This amount is really more serious than the figures denote, when it is remembered how comparatively small is the wooded area of Ireland. Apparently, and none too soon, a Departmental Committee is to be appointed to devise a method of staying the indiscriminate destruction, and at the same time to consider by what means a system of reafforestation could be practically carried out. The Board of Agriculture and Technical Instruction is not empowered to purchase woods and forests in order to preserve them, and the point is a difficult one for legislation in order to avoid the appearance of further restricting the freedom of the individual. Nor is it likely that national funds will be provided for the purpose, any such suggestion would be looked at askance by either the Irish or English taxpayer. Voluntary effort, strengthened by advice from the Land Commission and Agricultural Departments, would doubtless help to stay the evil, especially if it be shown that ruthless destruction of timber without replanting is not, in the long run, financially successful. The result of the Departmental Committee's investigations will be awaited with much interest, and it is to be hoped some practical scheme will be evolved by which the present denudation may be checked.

* * * *

Owing to the expense incurred by laying down underground conduits, and the difficulties of obtaining the Borough Council's consent for overhead cables, the London County Council have decided to experiment with a surface contact system for electrical tramways, which has proved successful in some provincial towns. The "G. B." type, which has been for twelve months in operation in Lincoln, is to be introduced on the line from Aldgate to Bow. In this type the electricity is obtained by the contact of skates, fixed to the cars, with studs placed at regular intervals in the roadway, in the centres of the tracks. These studs are normally uncharged, but when a car passes over them they are brought into contact with the cable beneath by a

mechanical device, magnetically operated. The principal advantage of this system is the reduced labour in excavation. The cost of the three systems per mile of single track, exclusive of cables and other equipment common to all, is:—Underground conduit system, £17,000; "G. B." surface contact system, £10,500; overhead trolley system, £9,500. It has been arranged with the owners of the patent rights, who undoubtedly have the courage of their convictions, that no payment is to be made for twelve months, and then only if the system is satisfactory and it is decided to retain it.

* * * *

The motor track, inaugurated on June 17th at Brooklands, has proved undeniably useful to those county surveyors who have, in their reports, held the motor vehicle responsible for the increased cost of road repair. Until the authorities laid down this special track the opinions of engineers as to road destruction were held, by the owners and users of motor vehicles, to be mere theories, based on incorrect data or prejudiced observance. Unlike the ordinary type of thoroughfare, it may reasonably be expected that the racing track was particularly designed to withstand the wear and tear of motors, and yet at the inauguration it rapidly showed signs of deterioration, and during the recent record it fairly went to pieces. No better argument for special taxation could have been devised for the rural and urban district councils, and never have the statements of road surveyors met with surer confirmation. Now that the adverse effect motor vehicles cause to road surfaces has been so clearly demonstrated, there is little doubt that the automobilist will eventually be requested to hand over a special contribution towards highway maintenance: nor is it likely that any objection will be raised, provided such funds are properly expended for the purpose for which they are obtained.

* * * *

Mr. Chas. Mayne, the Engineer and Surveyor to the Shanghai Municipal Council, has recently issued an extremely interesting report for the year 1906, which runs to over 500 pages. The varied subjects included in this *résumé* indicate that the duties of a municipal surveyor at Shanghai are widely different from those of a similar official in England, approximating more nearly to those of an Irish surveyor. They are a combination of those of a county and borough engineer, and comprise the carrying out of works of a purely architectural character. It is interesting to observe that "ferro-concrete" construction has extended to this far-off port, and that Mr. Mayne has fully recognised its essential when he states that "the Chinese labour employed will require very careful watching." It would seem that reinforced concrete, as a building material, would receive higher appreciation from architects and engineers if the labour approximated perfection. However, it is fourteen years since the first ferro-concrete structure was erected at Shanghai; it is still in good condition, and has cost nothing for repairs, and may be quoted as an example of what good material and proper supervision are capable. Mr. Mayne briefly touches on the desirability of architects' registration—with which opinion no one in Ireland will be disposed to quarrel—and his complaint that faulty, inexact, and otherwise unsatisfactory building plans are lodged at his office, might have emanated from many a municipal engineer in this country. It is curious to note that even at remote Shanghai the traffic problem has become acute, and that early consideration will have to be given to the congestion of the main thoroughfares.

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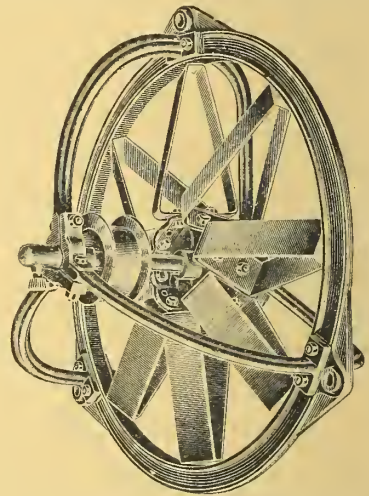
It having been generally supposed that the settlements, observable in the south-western tower and elsewhere at St. Paul's Cathedral, were directly due to the draining of the subsoil by underground railways and other engineering works in the vicinity, the London County Council recently decided to adopt another route for its new sewer, which was originally intended to pass within fifty feet of the south-west tower. A new tube system was for the same reason abandoned. Mr. G. C. Churchward, M.I.C.E., has now propounded an entirely new theory for the subsidence and a new remedy against its continuance. The foundations of the Cathedral stand on a stratum of pot earth, six feet thick on the north side, and four feet thick on the south side. The pot earth overlies a stratum of sand which forms a ridge along the whole south front, and then follows the surface contour from this apex down to the River Thames, some 300 yards distant, the bed of the channel of which is some seventy-six feet below the brow of the hill. Mr. Churchward's theory, briefly stated, is that owing to continuous dredging the old impervious river bed has disappeared, and exposed the face of this sloping stratum of sand. At each rise of the tide the water permeates the stratum to within about thirty feet of the Cathedral foundations, and then

retires, carrying the sand with it. To effectually prevent this continuous action, a river wall, 410 yards long and fifty feet in depth, would be required between Blackfriars and Southwark Bridges, with its foundations well bedded on the solid London clay. This would serve as a retaining wall for the sand and stay the destructive leakage. Our enterprising contemporary, the *Daily Mail*, has apparently so far accepted the new theory in lieu of the old, which some months ago had its hearty support, as to ask and receive permission to sink a trial pit on the north side of the Cathedral in order to ascertain whether the rise and fall of the tide can be traced at that point. Soap and water being held to be desirable, we can only hope that our contemporary's hydraulic experiments will result more satisfactorily than did its saponaceous research.



A NEW VENTILATING FAN.

The Blackman fan, of which there are now nearly a hundred thousand in use, is so well known that it is certain that the introduction of the new Patent Reversible Double Blackman Fan will be of general interest. We are in a position to give an illustration of this new fan, from which the principles of its construction will be readily understood. It will be observed that the time-honoured broad propeller blades have been discarded in favour of a larger number of blades of strip metal. Each pair of blades is made from one piece of strip metal, bent into the shape of a triangle, the base of which is fixed obliquely on the fan boss, so that the eight pairs of blades form two fan wheels, both inclined inwards and joined at the periphery. It is obvious



that as both sides of this fan are identical in every respect, it is reversible, so that the direction of the air current can be reversed without loss of efficiency by running the fan in the opposite direction. The shape and inclination of the blades, and the fact that they are arranged in pairs, make this fan highly efficient, and enable it to do its work inside a tube without any air space round its periphery. It possesses many advantages over the ordinary type of fan, and when it is mentioned that it is made at the works of Jas. Keith and Blackman Co., Ltd., it will be recognised that there is no likelihood of anything being wanting in excellence of construction or material. Full particulars, prices, &c., can be obtained on application to Blackman Export Co., Ltd., 70 Finsbury Pavement, London, E.C.

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46 and 47 Dame Street, Dublin.

ENGLISH POOR LAW ADMINISTRATION AND ARCHITECTURE.

Administrative scandals in respect of the administration of the Poor Law in England have for some time past been the order of the day. Poplar, Woolwich and now Hammersmith, have in turn startled the ratepayers by the tales of corruption unfolded. At Hammersmith recently the Local Government Board Inspector held a sworn inquiry into the methods of administration. One of the witnesses examined was a member of the well-known Asylum architects, Messrs. Giles, Gough and Trollope, of London. The circumstances disclosed are such as, fortunately, we may safely say, are quite unknown in this country, and never among the architectural profession. Had such matters occurred in Ireland, it would have been a long time before we should have heard the end of it. As our readers are also aware, some of the London guardians have already found their way into the dock. One of the charges in the Hammersmith case was that of extravagance in building, a common-place enough charge indeed, but seemingly in this case not without justification.

Mr. Albert Edward Gough, the architect of the costly institution, was cross-examined by Mr. Robb, for the Ratepayers' Association. The Local Government Board inspector, Mr. J. S. Oxley, who conducted the public inquiry, first asked—Do you think all this expense of the ceremony of laying the foundation-stone (£836) would have been passed by the auditor if it had been presented as a bill in the ordinary way?

Mr. Gough—I cannot answer that.

The Inspector—It is treated as a capital expense on the building, and the builder gets 10 per cent., the quantity surveyor 2½ per cent., and you get 4 per cent., making 16½ per cent., in addition, because it is dealt with in that way? Yes, I see the point, but I never took that view before.

Mr. Robb—I presume you hoped to charge your 4 per cent. on the £210,813 you mentioned on Saturday? Yes.

That included nearly £30,000 for engineering work. Are you an engineer? No.

You were to receive 4 per cent.; surely you were to do something for it? I did a good deal for it.

Mr. Robb then referred to the turret which contained the clock.

Mr. Robb—That cost approximately £1,000. What was the turret with the clock except an architectural feature? To show the time on all parts of the site.

For the benefit of the convicts in the prison next door? Do you think you were justified in spending £1,000 on it? Absolutely.

And you put £500 worth of copper on the turret? Yes, to keep the clock right. It will last for all time.

Mr. Robb—Then it is a sort of Georgian cornice? No, sir; I think it is Queen Anne.

Has not a great deal of this trouble arisen from your undertaking work which did not come strictly within your province? No; I don't think so.

You consider you were competent to supervise and issue certificates in respect of all this engineering work? We have people who know about these things.

The additions on the summary of alterations are £62,655. Do you in respect of any of these items produce the signed authority of the chairman or vice-chairman of the Board of Guardians, countersigned by the Clerk? No; I haven't them.

What, then, is your explanation? The Guardians left the matter in our hands, and we had an implied authority to do what we considered necessary and right to improve the buildings.

Mr. Gough said that the whole of the joinery was carried out in pitch pine, but he denied that the joinery could have been carried out in deal at from 30 to 40 per cent. less cost. Questioned in respect of a certain door, Mr. Gough described it as simple.

Your mind does not run upon simplicity and economy? It does not run upon jerry-building.

Witness further said the windows of the dining-room were of tinted glass specified at 4s. per foot.

Mr. Robb—There were 3,300 of this glass at 4s. per foot superficial which cost £650. By using glass, a sample of which was produced, at 1s., it would have been £165, and you might have saved £485 on the one item?

No answer was given.

Questioned about some of the glazed tiling, Mr. Gough said he thought the cost would be 30s. per yard. He did not know that the tiling at the Trocadero had been done for something like 17s. a yard.

I suggest there is nothing in the Cecil or the Carlton or the Savoy better than that? I do not know.

Mr. Gough also agreed that 1,013 locks at 20s. each were supplied, and 225 brass finger-plates at 10s. each.

Mr. Robb—Then there were 59 full-sized porcelain baths costs £14 each excluding profit, carriage, and fixing? These were selected by the Committee of Guardians in the contractors' show-rooms.

Mr. Robb—Then I see there are sixteen movable baths, at twelve guineas each, in addition to the fifty-nine. Then there were tinted glazed bricks in the laundry, with an area of five thousand superficial feet. Were they necessary? Yes, sir. Very desirable in the laundry.

Was not £40 10s. a greatly exorbitant charge for glazing three windows in the nurses' corridor? It is a special kind of light. It was wisely spent.

In reply to another question, Mr. Gough said he did not think £1,000 a large sum for coals for warming the institution before it was taken over, considering the time over which it extended. He (Mr. Gough) and the quantity surveyor hoped to get their commission, but he did not know about the contractor.

Questioned as to the £836 for the stone-laying ceremony, Mr. Gough said it was the usual thing for the architect to give his certificate for this.

Is it the usual thing to hoodwink the auditor and to pass under the certificate for buildings money that has been spent in high jinks and jubilation at the ratepayers' expense? It has been done over and over again.

Mr. Cassin said that the Guardians never knowingly paid any such sum.

Mr. Robb—No doubt they thought that the refreshments fell from heaven. (Loud laughter.) What did the refreshments consist of? Was there champagne?

Mr. Gough—Yes; I believe there was.

Who gave the orders for the refreshments selected—the vintages and that sort of thing? I think that the committee and I selected them.

You heard Mr. Casson say that the Guardians knew nothing about the refreshments. Where did you suppose the Guardians thought they were coming from? Lyons?

Amidst much laughter, the Inspector read the card of invitation, which was "to meet the Right Hon. Walter Long, M.P.," who was to perform the ceremony!

The evidence reflected little credit on the Architectural profession, and less on the witness.



REVIEWS OF CATALOGUES.

Paripan.—We are in receipt of a pamphlet descriptive of the above-named painting material, for which many outstanding features of great merit are claimed. Paripan is of the nature of an enamel paint, giving somewhat similar results to the best materials of that type. It is, however, said to be of much finer quality than enamel paints, covering bulk for bulk a larger surface, presenting a more beautiful appearance, and lasting very much longer. It is also easier to work, requires fewer coats for permanent work, and is, therefore, more economical. It is, in fact, claimed for it that although dearer than ordinary oil paint it is cheaper in the long run, owing to the saving in labour and materials secured by its use, while it is vastly superior on the all-important score of durability. Not only, indeed, does Paripan compare favourably with oil-paint in these respects, but it appears that it is really cheaper than either distemper or good wall-paper for interior wall decoration. It will last four times as long as either of these materials, and is washable and sanitary in the highest degree. Paripan is made in a variety of forms to suit every possible requirement, and the home may be decorated throughout in the most complete manner without any other materials being specified. The following are its principal varieties: Paripan glossy, giving a brilliant surface of flawless lustre that never cracks or blisters; it is made in white, ivory white, cream, and all shades of colours; Paripan flat or undercoat, producing a delicate flat surface like dull silk; Paripan finish, a transparent lacquer possessing greater brilliancy and durability than varnish; Paripan filler, a snow white priming material; Duripan, a cheaper variety of Paripan, for exterior use, brickwork, stonework, etc. All the varieties of Paripan are thoroughly washable, and improve in appearance with repeated washings. These materials are so highly spoken of that we intend to give them a trial, the results of which we shall publish in these columns, meanwhile we would recommend those of our readers interested in decorative work to communicate for samples, prices, etc., with the maker, Messrs. Randall Bros., Palmerston House, Old Bond Street, London, E.C.

ANSWERS TO CORRESPONDENTS.

How to Use the Centrolinead.

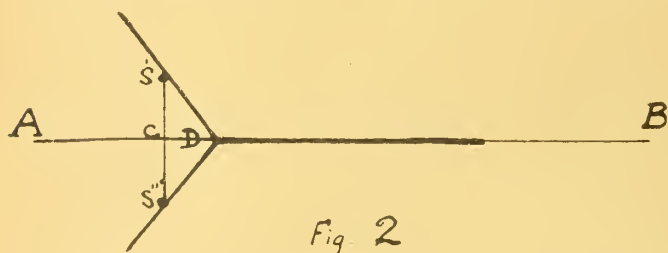
"I should be glad to know how to use the ordinary centrolinead. Is an imperial size drawing board large enough for a perspective of a building 120 ft. long and 45 ft. high, drawn to $\frac{1}{4}$ in. scale—i.e., can the centrolinead be fixed on the board for that purpose, or is a larger board required?"

The centrolinead used in making perspective drawings merely furnishes the means of drawing various lines to the same vanishing point: it does not find the vanishing point or other points from which the lines are to be drawn. A perspective drawing looks best when the object is contained within an angle of vision of 30 deg.; or, in other words, the point of sight should be at a distance of not less than twice the greatest dimension of the building as seen from the direction selected. The whole height of perspective view should not be more than two-thirds the height of the picture. Therefore, on a sheet 30 ins. by 22 ins., with the longest dimension horizontal, the greatest height of the building, allowing for border line, would be about 12 ins., which at $\frac{1}{4}$ in. to the foot would take in 48 ft., so that it would appear that the proposed building could be drawn to this scale on an imperial sheet.

The following description of the use of the centrolinead, by H. B. Bryan, Esq., is published in the Instrument Catalogue of Messrs. J. and W. E. Archbutt, 291 Westminster Bridge Road, London:—

The centrolinead invented by Peter Nicholson is a most useful instrument for perspective drawing, as by its means the vanishing point, often inaccessible on a drawing board, is easily determined. The centrolinead may be set to draw lines to a vanishing point, at any distance from the point of site, by the following method:—

The horizontal line (AB in Fig. 2) being drawn, the point of sight marked as desired, near the edge of the board on the same side as the distant vanishing point,



draw S ft. S ins. perpendicular to AB. From the point of intersection C set off 8 ins. above and below to S ft. S ins. Fix the studs at these points, so that the edge of the studs coincides with point, which must then be between the studs and the point of site. The distance from the point of sight to vanishing point being known, the distance from C to vanishing point is the difference. Then divide 64 by the distance from C to vanishing point. The result, which is CD, must be set off by a scale divided into tenths of an inch. Draw lines from S ft. S ins. to D; lay the short arms of the centrolinead exactly along the lines DS ft. DS ins., and the long arm along the line AB. Screw up tightly.

Example:—Let the distance from C to vanishing point

$$\frac{64}{\text{be } 123 \text{ ft.}} = 52 = \text{to distance from C to vanishing point.}$$

Draw lines from studs to D. Lay the short arm along these lines, adjust long arm to horizontal line, and clamp.

The constant 64 is the square of 8, the distance of the studs from the horizontal line. Any distance, as 7, 8, 9, or 10, may be used if more convenient when its square becomes the constant to be used.

ARCHITECTS WANTED

to note that THE DUBLIN DRAWING & PHOTO-PRINTING OFFICE is always at their service for making TRACINGS or WORKING UP DRAWINGS from sketches. All Drawing Materials supplied. Photo-prints a speciality. Tel. 2278. Address 17 Westland Row, Dublin.

CORRESPONDENCE.

"Building Cases."—Antisell v. Doyle.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—In your journal of the 13th I read a short extract from "Building Cases," a work prepared by a Mr. Morrow, LL.D. You mention the above case as a somewhat curious one, circumstances existing which were not reported. Such is quite true. The jury ignored the evidence of both plaintiff and defendant by a complete verdict for the latter, which led Mr. Justice Madden to refuse judgment, being against the evidence.

As the plaintiff I give you evidence, sworn to and recorded, and part published in the papers at the time. Mr. Beardwood, defendant's architect, engaged me to prepare the quantities. I asked if he had Mrs. Doyle's approval, etc., and he said he had. I issued quantities to the builders selected, some of them by Mrs. Doyle, the late Mr. John Pemberton, for instance, whose tender she accepted; and, as requested by the architect, Mr. John Pemberton, Mrs. Doyle and myself met in his office on a Saturday after tenders were opened to arrange the contract, which Mrs. Doyle was to have signed on Monday, when Mr. Beardwood had the contract prepared. We were to attend again that day, and when I did so Mr. Beardwood handed me a letter from Mrs. Doyle to him, stating she had changed her mind and would not build at all. (I showed that letter to my solicitors.) By direction of the architect, I then furnished my account for fees, taken from Mr. Pemberton's schedule, certified by architect, and handed same to Mrs. Doyle, who stated she would not pay a farthing, that I should look to the builder. I, therefore, had no alternative but go to law, or lose my £104. The case came before Mr. Justice Madden and a common jury, some of whom I afterwards heard were friends of Mrs. Doyle. Mr. Beardwood swore he had explained about my duty, fees, etc., and builders' rules, to Mrs. Doyle; that if the work went on the builder would pay the fees provided in his contract, and if no contract she would have to pay, and that she fully understood matters. Mrs. Doyle, in her evidence, agreed with her architect as to the conversation, and that he said the builder would pay the surveyor's fees, but no more, by which she considered she would be at no expense. The Judge then asked her how the builder was to pay the surveyor's fees if he had no contract with her for the work, and she replied, she did not know. The Judge also asked Mr. Sergeant Dodd, defendant's counsel, if he had any fault to find with the surveyor's work or fees, and he replied, none whatever; he only disputed his client's liability to pay the fees. Mr. John Pemberton was examined for me as to tendering, and Mr. W. Butler, C.E., surveyor, as to custom, etc. A person gave evidence as an architect for Mrs. Doyle. He swore there was no hard and fast rule to pay surveyor's fees, and that as the work did not go on he considered Mrs. Doyle not liable to pay them. The Judge then put this question to him: If a man does a fair day's work, should he not be paid for it by someone? (No answer). Question repeated. Answer: "I suppose so." Question again put by the Judge, with a caution. Answer: "Yes." The case next came before the Court of King's Bench—the late Mr. Justice William O'Brien holding that it would "be monstrous that a person should be called on to pay for the services of another of whom he never heard, and the nature of whose business was to inflate the amount to be paid." (The learned Judge must have ignored Mrs. Doyle's evidence, etc.)

"Mr. Justice Gibson held that the evidence pointed rather to a practice, or habit, than a binding custom such as that alleged. The defendant was not liable to the plaintiff, whoever else might be."

The Lord Chief Justice quoted English cases, etc., and from Judge Madden's notes, and said the "trial was unsatisfactory, and in his opinion there should be a new trial, and he believed the evidence of Mr. Beardwood, etc."

There was no new trial, and I lost hundreds of pounds.—Yours truly,

T. C. ANTISELL.

1 Fitzgibbon Street, Dublin, July 20th., 1907.

STEAM WAGGON.

"Thornycroft" Steam Waggon; 3 ton; excellent condition; subject to any expert examination; lot spare parts; must be disposed of immediately.—Peare's Motor Works, Waterford.

Assistant desires situation with builder; general knowledge, management, book-keeping and accounts good references and experience. Apply—Box 156P.

THE HISTORY OF A COMPETITION.

(Limerick Carnegie Library.)

The following are particulars of the circumstances under which the Public Libraries Committee of Limerick were enabled to proceed with the erection of a new building for the public library and museum, and also a full history of the election held for the appointment of Librarian and Curator.

The account given of the election is one that should be read with interest by all who are interested in ensuring that competent persons should be elected to be Librarians in our Public Libraries, and that faith is preserved with candidates who are invited to compete at examinations. If good faith is not to be observed by a public body, it would be better to abandon the appearance of an examination, and proceed to appoint whoever could carry the largest number of votes, regardless of qualification for the office. It is deceiving the public to stipulate for specified qualifications and then to elect a competitor who does not fulfil these conditions, and to reject one who does. Such a practice can only result in withdrawing from competition men of striking merit, who are unable to secure the required voting forces, and thus make way for appointments of the incompetent. In the particular case in question we have no doubt that at least one person well qualified did not offer himself because he believed, no matter what his qualifications might be, the result was a foregone conclusion.

The position of Librarian is one of very great importance in the upbuilding of Ireland, and if those who have the appointments in their hands recognised this importance, care would be taken to secure the services of men capable and willing to recognise the opportunities for good which their positions afford, and the importance of the duties and obligations attached to such positions, and capable and willing to discharge them. But, unfortunately, the work of the Librarian is not understood, and any qualifications appear sufficient to some library authorities to justify the appointments.

Mr. Carnegie's Gift.

The city of Limerick received a gift of £7,000 from Mr. Carnegie to build a new library, but as the local rate of 1d. in the £ did not provide a sufficient sum for annual maintenance, the Museum Act was put in force, which enabled the Corporation to strike a rate of ½d. in the £ additional, and a museum was incorporated with the building.

A free site was obtained in the City Park—it is an ideal site for a library. The trustees offered prizes of £75 and £25 in an open competition for the best designs, and appointed Mr. George C. Ashlin, R.H.A., then President of the R.I.A.I., as assessor. This induced a large competition, and about sixty architects from Ireland and Great Britain competed. It is satisfactory to note that in this large competition two Irishmen were successful, Mr. Beckett, M.R.I.A.I., of Dublin, was awarded first prize, and Mr. G. P. Sheridan, F.R.I.A.I., of Dublin, second prize. When examining the reports accompanying the designs, the trustees found that Mr. Beckett's perspective drawing would cost about £9,000, while the alternative offered by him for £7,000 was an emasculated structure of which no perspective drawing was submitted, with a part pebble-dashed exterior to be maintained. The second premiated design provided a cut-stone exterior for £7,000. It required very little consideration on the part of the trustees to decide on adopting the second design, but out of loyalty to the assessor, and rather than add another disappointing chapter to the strange history of Architectural Competition, the trustees paid over the first prize, though it was doubtful if the conditions had been complied with.

The building, which comprises a library, museum, and curator's residence, is in the Romanesque style, strongly reflecting Irish feeling. The carving is of Celtic design. The exterior is a fine specimen of local limestone work, and a credit to the craftsman as well as to the architect. The plan of the library is an admirable one, as there is a complete supervision from the lending department over all the other rooms of the library.

How to ensure the appointment of a suitable curator and director by such a committee was no easy problem. The best solution was to appoint a sub-committee of selection to draft an advertisement, and from the list of applicants

submit such as were found to be qualified to the general committee for election. Amongst the subjects made compulsory was Irish.

The examiner's report on Irish was as follows:—

Examination.	Possible Marks.	Candidate. No. 1.	Candidate. No. 2.*	Candidate. No. 3.
Written	... 100	50½	18½	52
Oral	... 100	54	2	56
Total	... 200	104¼	20½	108
Pass Percentage		52½	10¼*	54

*Elected.

The examiner, Mr. J. H. Lloyd, observed of No. 2: "This candidate has, to all appearance, no grip of the subject. He, therefore, I take it, does not come into consideration at all."

All the reports were laid before a special general meeting of the Library Committee on the 3rd July, 1906. Mr. O'Brien, the Mayor's *locum tenens*, took the chair. The fact that only one candidate qualified in all subjects was very disappointing to the members who came to vote irrespective of merits. Various suggestions bearing on this point were made, but the chairman would consent to nothing but that the candidates should go unconditionally to the poll. Two only, Messrs. Stephens and McNamara (Nos. 1 and 2, both local men) were proposed. Twenty-eight votes were cast for each, and the latter (Candidate No. 2) was elected by the casting vote of the chairman. The chairman's right to a casting vote was questioned, and eminent legal opinion was afterwards procured adverse to the election. However, at the next meeting of the committee, with almost the same number in attendance, the casting vote of the chairman declared against taking any notice of the objection, and Mr. McNamara was directed to take up office.

(From the Irish Libraries Journal).

IMPORTS.

Port of Dublin.

July 10—Per Bray Head, from Belfast, 2,105 pcs. firwood, sawn, to order. Per Alastair, from London, 390 tons cement, T. and C. Martin, Ltd. Per Lady Hudson-Kinahan, from London, 1,000 sacks cement, J. Kelly and Son.

July 11—Per Katie Darling, from Cardigan, 105 tons bricks, J. Beckett. Per Teelin Head, from Riga, 292 pcs. hewn, 250 bdles. firwood, sawn, 14,076 pcs. deals, 35,150 pcs. boards, to order. Per Yanti, from Christiania, 5,461 pcs. floorings and scantlings, Brooks, Thomas and Co., Ltd.

July 13—Per City of Oporto, from Antwerp, 11 cases window glass, W. M. Collins; 245 cases do. do., Brooks, Thomas and Co., Ltd.; 72 cases do. do., T. Dockrell, Sons and Co.; 70 cases do. do., T. and C. Martin; 35 cases do. do., A. Bassi; 20 cases do. do., W. Martin, Son and Co.; 10 cases do. do., E. Hall; 50 cases do. do., Hoyte and Son; 3 cases do. do., D. Gordon; 12 cases do. do., R. and J. Brown; 40 cases do. do., J. Arigho; 60 cases do. do., P. Sibthorpe and Co.; 12 cases do. do., to order; 720 steel joists, to order; 220 bags cement, to order; 5 cases plate glass, to order. Per Lady Wolseley, from London, 800 sacks cement, T. Archer.

July 15—Per Dunmore, from Shoreham, 230 tons cement, J. H. Richardson. Per Dinorwic, from London, 270 tons cement, J. C. Johnson and Co. Per Lady Martin, from London, 1,000 sacks cement, T. Dockrell, Son and Co.

July 16—Per Ruth, from Ghent, 11,135 bags cement, 7 cases limestone, to order.

July 17—Per Mary Rosanna, from Glasgow, 25 tons fire clay, 120 tons bricks, T. and C. Martin, Ltd.

July 18—Per Enid, from Port Dinorwic, 196 tons slates, Brooks, Thomas and Co., Ltd.

July 19—Per City of Berlin, from Hamburg, 4 cases window glass, 1,134 cakes asphalt, to order. Per Gleaner, from Portland, 155 tons stone, E. S. Glanville.

July 22—Per Rosebank, from Narva, 28,700 pcs. deals and scantlings, T. and C. Martin, Ltd.; 22,720 pcs. do. do., R. Martin and Co. Per Elidir, from West Hartlepool, 400 tons cement, J. P. Corry; Lady Roberts, from London, 700 sks. cement, T. Martin and Co.

July 23—Per Lady Hudson-Kinahan, from London, 800 sacks cement, T. Archer.

ENGINEERING NEWS.

Dublin.—The Lighting Committee of the Dublin Corporation are prepared to consider proposals for the supply of motors to their consumers on the hire purchase system.

TENDERS.

Kildare.—The following tenders have been received in connection with Newbridge sewerage works. Engineer, Mr. F. Bergin, B.E., 36 Westmoreland Street, Dublin:—

W. A. Beck, Newbridge ...	£6,784	0	0
Grainger Bros., Dublin ...	6,813	18	11
Baird's, Ltd., Dublin ...	7,138	11	5
McKee and McNally, Dungannon ...	7,252	10	0
Patrick Sheridan, Newbridge ...	7,256	7	6
Collen Bros., Dublin ...	7,425	11	6
Martin and Co., Howth ...	7,563	0	0
Daniel Clarke, Dublin ...	7,657	0	8
Heggarty and Gault, Ballymena ...	7,682	4	3
George Langley, Dublin ...	9,247	0	0
H. and J. Martin, Dublin ...	10,475	0	0

CONTRACTS.

TO BUILDERS.

Tenders are invited from competent persons for the building of a New Hall and Business Premises in Cecil Street and Henry Street, Limerick, for St. Michael's Temperance Society, in accordance with the drawings and specification prepared by me.

For the convenience of builders tendering bills of quantities have been prepared by Mr. James Mackey, Quantity Surveyor, 58 Dame Street, Dublin, copies of which, with forms of tender, can be had on application to me, accompanied by a deposit of £1 *rs. od.*, which deposit will be returned on receipt of a *bona fide* tender.

Drawings and specification can be inspected at my office during business hours.

Tenders, endorsed on envelopes "Tender for New Buildings for St. Michael's Temperance Society," accompanied by bill of quantities fully priced in ink, must be delivered at my office not later than 12 o'clock on Tuesday, August 6th prox.

The lowest or any tender not necessarily accepted.

BRIAN E. F. SHEEHY,

Architect,

57 George Street, Limerick,
20th July, 1907.

WAYGOOD LIFTS.

Head Office and Works: Falmouth Rd., London, S.E.

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5 Leinster Street, Dublin.

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In improved FIBROUS PLASTER, STUCCO, CEMENT, NATURAL and ARTIFICIAL STONE.

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GIRDERS, ETC., FOR SALE.

Wrought-iron built Girders for Sale, short time in use, good as new, varying in lengths from 13 to 33 feet, width 8½ in. to 12½ in., depth, 1 ft. 3 in. to 2 ft. 3 in. Also a few Box Girders.

Can be seen at Cork Street Engineering Works, Dublin.

CONTRACTS.

CORPORATION OF DUBLIN.

NOTICE TO BUILDERS AND CONTRACTORS.

The Public Libraries Committee invite Tenders for the erection of a Public Library at Great Brunswick Street, in accordance with plans, specifications, and conditions of contract prepared by the City Architect, which may be inspected daily (except on Saturdays) at his Office Municipal Buildings, Cork Hill, Dublin, between the hours of 11 a.m. and 4 p.m.

No Tender will be entertained which is not on the prescribed form.

Copies of Bills of Quantities and Forms of Tender may be obtained at the Office of the City Treasurer, Municipal Buildings, Cork Hill, Dublin, on payment of £2 (Two Pounds), which will be returned to Contractors who submit *bona fide* Tenders.

Tenders must be accompanied by the Priced Bills of Quantities (priced in ink), and must also contain the names of two solvent sureties willing to be bound, severally, with the Contractor in a sum of £2,000 each for the due fulfilment of the Contract.

Tenders, under seal, addressed to "The Chairman of the Public Libraries Committee," and endorsed "Tender for Public Library at Great Brunswick St.," to be lodged at my Office, not later than 11 o'clock, a.m., on Friday, 2nd August, 1907.

Contractors will be required to agree to the condition that no Tender shall be amended or withdrawn before the expiration of a period of two months from the date of delivery to the Corporation.

The work executed under this Contract shall be done entirely by local labour, and, where this is considered impracticable, the Contractor shall apply to the Municipal Council for permission to have the work done by other than local labour; and the Municipal Council, having considered the statements submitted by the Contractor, shall, by resolution, determine whether the work is to be done by local labour or otherwise. The Contractor shall be bound by such resolution.

The Contractor shall pay to those employed on the work under the Contract not less than the minimum standard rate of wages paid in Dublin and District; and shall employ regular tradesmen to perform tradesmen's work, and observe the hours and conditions of employment now recognised as proper there.

In order to secure the better observance of the conditions of these Contracts with regard to Irish Manufacture and Fair Wages, and, as a further safeguard against sub-letting, the workshop or workshops, factory or factories, or other places used by the Contractor in the execution of this Contract shall be also open to inspection, at any time during the working hours, by a duly authorised representative of the trade affected by such Contract, upon the production of a permit, signed by the Town Clerk or other Officer appointed by the Supplies Committee.

The lowest or any Tender will not necessarily be accepted, nor will payment be made for the Tenders.

The accepted Contractor must pay the cost of the deed of contract, which will be Solicitor's out of pocket costs only.

HENRY CAMPBELL, Town Clerk.

Town Clerk's Office, City Hall, Dublin,

13th July, 1907.

TO BUILDERS AND CONTRACTORS.

Tenders are invited for the Erection and Completion of a Church at Sion Mills, Co. Tyrone, in accordance with Plans, etc., prepared by Messrs. W. F. Unsworth, F.R.I.B.A., and Son, Petersfield, England. The plans can be seen, and all information obtained, on application to Messrs. Herdmans, Ltd., Sion Mills, Co. Tyrone, who will supply Bills of Quantities and Forms of Tender on receipt of a deposit of £2 *2s. od.*, which will be returned on receipt of a *bona fide* Tender. Tenders to be delivered at the Office of Messrs. Herdmans, Ltd., not later than 12 noon, on the 7th day of August, 1907.



BELFAST POST OFFICE EXTENSION.

DR. ROBERT COCHRANE, F.R.I.B.A., H. M. Office of Works, *Architect.*



THE ARMAGH POST OFFICE.

DR. ROBERT COCHRANE F.R.I.B.A., H. M. Office of Works, *Architect.*



THE INTERIOR CURRAGH POST OFFICE.

DR. ROBERT COCHRANE F.R.I.B.A., H. M. Office of Works, *Architect*

THE IRISH BUILDER AND ENGINEER.

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No. 16—Vol. XLIX.

HEAD OFFICE

August 10, 1907.

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DUBLIN

Price 1d

TOPICAL TOUCHES.

We understand that some very extensive additions to the Convent of Mercy, Athlone, are about to be undertaken. The architects are Messrs. W. H. Byrne and Son, Dublin.

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Messrs. Birch, Killon and Co., of Manchester, send a pamphlet entitled "Sewage: How to Purify It," the method of purification adopted being the "Fiddian Distributor," which has gained several awards, and has been most successful in operation.

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The process of purification adopted in the Birch-Killon system is a combination of anaerobic and aerobic bacteria, the former in a resolving tank, and the latter in a filter. It is claimed that with an ample supply of fresh air the sewage is purified in the filter to the extent of from 80 to 95 per cent.

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It is further claimed that domestic sewage containing no sand or road washings need *not* be screened or treated in a tank preparatory to going through the filter.

* * * *

The chief novelty of the Fiddian distributor is *good distribution*, the most important essential in an effective filter. One of the weak points of an ordinary filter is that the sewage flows on simply in lines, or at certain points, and thus tends to congest the filter.

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The Fiddian distributor consists of an elongated water-wheel, which revolves horizontally, the head of the sewage itself supplying the motive power.

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This appears to us to be a most excellent arrangement, and a distinct advance.

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One of these filters has lately been completed at Mount Annville Convent, Dundrum, Co. Dublin, where it has given complete satisfaction.

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"Coatostone" is a preparation we have lately come across. It gives the appearance of stone to wood, plaster, iron, or cement work. It is not wholly imitative and deceptive, as it in itself provides an attractive treatment of flat surfaces, either in interiors or exteriors, giving a rough, granulated surface, capable of very good treatment in a decorative scheme. The proprietors are "Coatostone" Decoration Co., 77 Mortimer Street, Regent Street, London, W.

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In London there has been for some time past established, and is now doing good work, a society for the "Survey of the Memorials of Greater London." It is rather a pity that we have not something of the kind in Ireland, more particularly Dublin. Many of the old mansions and houses of Dublin and its environs are full of interest. Rapidly the older houses are being despoiled of their fine old mantel-pieces, which are sold to dealers at extravagant prices, while the grand old modelled ceilings are either whitewashed out of all recognition, or else are hacked and mutilated.

A company is being floated to develop the Dibdin patents relating to slate bed sewage purification, described in our last issue. Amongst the directors is Colonel W. Corry Dickenson, who is very well known in Dublin, where he resided for many years; he was the officer responsible for the Royal Barracks reconstruction.

* * * *

The well-known firm of Messrs. George Young and Co., Middle Abbey Street, Dublin, hardware merchants and builders' providers, has been floated as a limited liability company, and shares are now on the market. Up to the present the firm has had a most successful career, and under the new conditions is likely to increase and develop its trade very largely.

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Messrs. J. and R. Thompson, builders and contractors, are the Irish agents for Hennebique's ferro-concrete constructions, and they have been doing quite a lot of work of late in Dublin and the provinces. One of their last works was the new warehouse for Messrs. John Jameson and Sons, in North Anne Street, constructed entirely of ferro-concrete, and of which we published a special description recently.

* * * *

The more America buys steel material from Germany, the more Germany must buy pig-iron from the United Kingdom, since even at present her own furnaces cannot meet all her requirements. Last month the shipments of pig-iron to Germany showed a remarkable expansion. The total exports of pig-iron in May were 148,637 tons, as against 88,059 tons in the corresponding month of last year.

* * * *

A book entitled "Modern Cottages and Villas" has reached us for review. It comprises a series of designs for small houses costing from £150 to £1,000, selected from the "Illustrated Carpenter and Builder," with descriptive notes by H. B. Phillpott. It is issued at the very moderate price of 1s. by John Dicks' Press, Ltd., Arundel Street, Strand, London, and is wonderful value for the money. While some of the designs are poor enough, others—the great majority—are very suitable, practical, and good in every respect. Those engaged in the design of such structures could not do better than invest 1s. The illustrations are clear, and the whole is extremely well produced.

* * * *

A curious exhibition of local feeling was displayed recently by the master builders of Yarmouth, who passed a resolution remonstrating with the building committee of St. James' Church, Yarmouth, for their action in accepting a non-local tender, amounting to £2,685, for completing the church, this tender being £85 below the lowest Yarmouth tender. The Mayor was chairman of the building committee, and he, in acknowledging receipt of a copy of the resolution, points out that while the committee could not see their way to unnecessarily sacrificing £85, they had asked the successful builder to employ local labour. His worship winds up his letter with a little side-hit at the local builders, by concluding with the observation, "I believe that the members of the Great Yarmouth Master Builders' Association do not object to tender for work outside their own borough, and are in some instances successful."

THE BELFAST GARDEN ESTATES COMPANY.

Exhibition of Houses, June, 1907.

Report of the Assessor.

The ten types of houses erected at Cliftonville are comprised under two classes, and, as representative of the purposes for which these buildings are intended, must be considered and judged accordingly with reference to the methods of buildings necessarily connected with enterprises of this nature, it may fairly be asserted that the houses on view, built under the conditions of this competition, rank in the main somewhat above the average, both in constructional merit and residential convenience. They certainly are not below the standard of artistic character to be expected within the limitations of everyday commercial speculative work designed to provide for the housing of skilled artisans and lower middle-class householders of moderate means. No attempt has been made to supply accommodation at the risk of stability by employing concrete slabs or fibrous sheetings, or any other form of specialised or patent modes of construction. The houses are of ordinary brickwork, carried out according to the City of Belfast Bye-Laws. Such were the conditions, indeed, which formed so essential a part of the competition scheme, with the result that the Belfast Garden Estate houses are highly creditable to their builders and promoters of the scheme. In the same general terms it may be asserted that the houses are calculated to furnish suitable investments for the well-earned savings of those whose thrift or other good fortune may have given the means with which to buy a house for personal occupation. Any one of these examples of residential property appear to be well adapted for home comfort and satisfactory ownership at the prices which were fixed as the basis of the competition.

This much may be stated without risk of contradiction and without any use of superlatives which not infrequently are, perhaps, employed in regard to speculative undertakings. It is not my intention to give the reasons as to my award, or to discuss the selections which I have made, but a general statement concerning each example is added for the information of the parties immediately concerned.

The prices fixed at the outset for these residences were limited to the respective cost of £240, £275, and £350 each. These designs entered for the competition were to produce the most convenient and homely artistic houses procurable for these stipulated amounts, combined with sound workmanship and solid construction, including also up-to-date sanitary arrangements and appliances. The roads and sewers being already provided by the ground landlord, no deductions had to be made on their behalf, and at the same time the ground rents are very reasonable. The instructions for the guidance of competitors included suggestions as to the main essentials to be employed, and it was made quite clear that architectural design was to be reckoned as a by no means unimportant matter in determining the awards. A bonus or prize of £50 in each case was offered to the designer of the first prize dwellings, and this was done to induce artistic results. The merit of the most satisfactory of the examples as carried out is comparatively very close, reckoning one thing with another, and the task of estimating the advantages of one house, as contrasted with the conveniences or compactness of plan of another, presented a problem not altogether so easy as at first sight might appear. The immediate requirements of the families catered for primarily are, of course, of a practical kind, and it is not pretended that any one of the houses can be reckoned as ideal. Some have commodious parlours, others devote more space to kitchen arrangements, bearing in mind restricted service and economic modes of living, while some display more regard to the amenities of life or the social habits of the well-to-do. Only a few exhibit an adequate appreciation, and so give more attention to artistic concerns. The main difference may be classified by the general terms of architects' houses and builders' houses.

The latter are generally assumed to be better adapted to the needs of those who will live in them. This is by no means invariably the case, however. In execution some of the examples suffer from the fact that the designers have not been allowed to supervise the working out of their schemes. In most of the houses the ready-made fittings are incongruous, and lack all claim to artistic merit. It is, no doubt, difficult to select inexpensive chimney-pieces, etc., of good design. Such a choice presupposes an intuitive taste, and also a special knowledge of the whereabouts and available stock of manufacturers catering for such business. Their productions are mostly overdone, and are often vulgarised by imitating peculiarities supposed to belong to the arts and craft school. The result of selecting such productions is heterogeneous and ill-considered, though

possibly likely to prove popular, which stands for a great deal.

Awards.—Class I.

The best house in Class I. is, in my judgment, that built on corner Plot No. 4, by Mr. Samuel Ewing, from plans supplied by Mr. W. Martin Ashmore, Architect. It is entirely faced with red bricks and red tiled roofs. Tile creasings are used by way of heads to the windows, and as a hood mould to the arched entry, with good effect. Two parlours are provided, and a neat staircase, with a fairly good kitchen, a roomy larder, and suitable scullery fitted with a copper. This department is separated ingeniously from the rest of the house. The windows, perhaps rather too small, are very low down in the bedrooms, which is a fault, their heads being 3 ft. 2 ins. below the ceiling level, thus giving no chance of ventilation where it is most needed. The flank window of the diningroom supplies a good view of the garden. The tradesmen's way to the back door is well arranged, an advantage wanting in some others. The chamber over the kitchen could have been improved by more adequate window space. The hanging cupboard, or linen room next the best bedroom, is needlessly large for so small a house, and its space might, with advantage, have been thrown into this bed-chamber, omitting, too, the door on the cant in the passage.

The bathroom and w.c. are both good. The detail, with some few exceptions, is very commendable. The chimney-pieces, too, are well chosen. The house is generally quite above the ordinary merit, and externally it is cottage-like, tasteful, and picturesquely grouped, being also well put on the land and suitably enclosed. I award it the first prize, with the accompanying prize for its designer.

Mr. Wm. Kerr's house on Plot 1 is awarded the second prize in Class I. It was designed by Mr. W. J. W. Roome, M.R.I.A.I., Architect. The plan is very commodious, being particularly spacious and roomy, with a projecting wing in front. A verandah forms the porch next the living room bay, so that any casual caller will be able to survey completely what is going on within, the east windows on the flank facilitating this publicity. The pantry from the diningroom has a service hatch opening out of larder, so as to afford economy of service beyond the scullery where the washing-up would be done. This is a capital arrangement. The kitchen accommodation is somewhat large for such a house. The space of only 2 ft. 6 ins. between the staircase and the wall is much too cramped for the passage way to kitchen, and that is further intruded on by the projecting scroll of bottom step of the stairs. The scullery is admirable, but the servants' w.c. opening directly on to the kitchen porch is objectionable, the running gate notwithstanding. The cloak room under the stairs is convenient. The hall has random mosaic paving, and the hearth tiles are attractive. There are four bedrooms. One is narrow and small. A linen room is provided, but the sloping ceilings would allow of very few shelveings. The w.c. is badly cramped. The bath room is excellent. The general effect externally is simple, and, on the whole, is well done, with rather too much window space. The cost of this house is a matter of surprise as contrasted with its size. The chimney-pieces are not particularly suitable, and but little artistic character has been displayed in the finishings generally.

The third prize in Class I. is given for the house built on corner Plot No. 2, erected by Mr. James Kidd, and designed by Mr. J. St. J. Phillips, A.R.I.B.A., Architect. The detail of this building is very ordinary, and the woodwork looks thin, but the house has been designed with proper regard to a corner site, and is well planned. The failure of success is due to the absence of supervision of the execution of the work, and this is rather rough in parts. The kitchen is very good, and so are the arrangements generally, but it is a mistake to put the w.c. in the bath room, and the windows in the bedrooms are very low down.

Messrs. McKenzie and Risk have put up a "double-fronted" house on their corner Plot No. 14. The stairs front the main entrance, and the design is very ordinary, without much regard to the site or its aspect. The house is an excellent one in many ways, and appears to be thoroughly done without any arty and crafty cheap imitations. The kitchen is good, but the larders face south, and with big windows would be hot in summer time. There are four capital bedrooms, and the w.c. is not too much in evidence.

The house on Plot 3, built by Mr. T. McKee, and designed by Mr. W. A. T. Carter, A.R.I.B.A., is another ordinary type of a double-fronted plan, but it is not put on a corner site, and so there is good reason for this arrangement, particularly, too, as the south aspect is towards the front. The kitchen and offices command the garden. The plan has suffered somewhat in execution, and the finishing is very commonplace, with grained woodwork and enamelled slate

chimney-pieces of much pretension. The stairs are cramped, being only 2 ft. 4½ ins. wide in the going. The w.c. in the middle of the hall is most unnecessary and objectionable. A second closet occurs upstairs, but none is provided for the servant.

Class II.

The relative merits of the two best houses of this type are exceedingly close, though the designs differ considerably in many respects, and neither can rank as ideal houses of their kind. To look for that would, perhaps, have been unreasonable, though in general terms both the houses are compact and well considered. By a little more thought both could have easily been improved.

I place the house erected on Plot No. 5, by Mr. Samuel Ewing, for the first prize. Mr. George Mitchen designed it. It is economically covered by a hipped roof, the chimneys being gathered together into one stack at the apex of the roof. A projecting porch is placed on the south side opening into a central hall, in which the staircase is situate, and so contrived as to be out of view of the entry. Its fault is the somewhat crowded arrangement of the bottom steps next the kitchen door; these appear more objectionable on the plan than in reality. The sitting rooms and kitchen are roomy, while the offices are well arranged, with a covered way at the back leading to the w.c. and coal place. Next the porch and under the stairs is a sufficient cloak room. There are three bedrooms of good size, but the windows are too low down, and no means of ventilation to the upper air space, which is a great fault. The bath room, with its airing cupboard, merits praise, and the w.c. is nicely out of view and ample in size. This is a commodious little house, and very well built. Externally it is somewhat lacking in character or artistic effect, and, though devoid of pretentiousness, it is wanting, too, in cottage-like design, which is essential for architectural grace.

The pretty little house on Plot 10, designed by Mr. J. St. J. Phillips, A.R.I.B.A., Architect, and carried out by Mr. James Kidd, is awarded the second prize. The chief feature of the plan is the sittingroom hall, with the livingroom beyond looking east, and commanding a view of the garden, a door being provided on the north end of the square bay where a pent projects over a recessed garden seat. The sittingroom is rather cut up, and would have gained much by projecting a small external porch instead of recessing one. The kitchen door and stairway are neatly masked from the entry. The kitchen is really more roomy than it appears to be on the plan, and the scullery and larder are very suitable.

The isolated coal-place looks like an afterthought, and there is no back w.c. Probably no servant would be kept in a cottage of this size, but a second w.c. is always an advantage. The staircase is only 2 ft. 5 ins. wide, which is narrow. There is a capital bathroom and w.c., also an airing cupboard. All three of the bedrooms have fire-places, but here again the windows are very low down, and there is not enough provision for ventilation. Externally the rough cast and half timbering to the gable make an approved appearance, and this house is the best in general effect, the roof treatment being made a feature of. The third place is accorded to Mr. James H. Barton's well-built house on Plot No. 6. A four-foot passage in the centre makes a "double-fronted" arrangement. The kitchen is the most spacious room in the building. It is fitted with an excellent kitchener, and, like all the other kitchens, is paved. The narrow staircase is located in an inner hall, and the steps at its base are awkwardly contrived. There are two fairly roomy parlours, the back one overlooking the garden, but it has no access to it. The three bedrooms have low-placed windows, but ventilators are inserted beneath the ceiling level. The landing is completely arranged with doors adroitly contrived. The bathroom is almost too spacious, but the w.c. off the half-space landing is very contracted and difficult to enter. The house is simple, but not artistically conceived. The iron chimney-pieces and the up-to-date sort of coloured glazings introduced in some of the windows may pass muster with the public, who, with more justice, would rightly appreciate the builder's endeavour to give a good work-a-day dwelling. There is, however, no second closet and no coal-place, beyond a cupboard under the stairs.

Mr. Hugh Strain has put up a very creditable house on Plot No. 18. Mr. William James Walshe is the architect. The diningroom is larger than the parlour, as it should be, but the side window will be overlooked when the adjoining house is put up. The kitchen and offices, which are commendable in themselves, overlook the garden, the central path of which leads up to the scullery door, with perhaps a too homely idea.

There is an enclosing timber screen to shield the back w.c. and coal-place. There are four bedrooms upstairs, and

good head-room occurs over the stairs, as well as an ample landing. The w.c. is not too prominently placed, and there is a good bathroom, with lavatory, as in all the houses. The windows are very low down, the space above being assisted in ventilation by gratings in the walls. These the tenants will probably paper over at once. For speculating work this house is rather above the average, and there is a good kitchener. The elevation is fairly attractive-looking, and is rough-casted above a tall plinth of red brick, with brick cills and cement rendered and moulded over door. Behind the door is a cloak space under the stairs. The merits of this house are more practical than artistic.

The rough-casted house occupying Plot 19, and designed by Mr. J. C. H. Sandbach, has been carried out by Mr. Thomas McKee, with some changes from the original plan, which give an occasion for regret, as the elevation drawn suggests more satisfactory results than are obtained by the executed work. The circular light in the porch, with a double ring of brickwork round these parts, has its opening nearly flush with the return wall, and the crushing appearance of the brick ring arch to the portal itself adds to this incongruity. The woodwork is skimmed and thin. The stairs are out of sight of the front door, but they are roughly executed, and the very cramped head-room over the half space is a grave defect. The landing is spacious, and the three bedrooms are good, though the windows are so low. The ventilators in the walls do not help matters, as they are as low down as the window heads. The kitchen and parlours are little behind the others in merit. The notion of the plan is economic and convenient in arrangement. Externally the house is ambitiously conceived, aiming wisely at artistic simplicity at once attractive to the architectural mind; but, unfortunately, the result is disappointing. Whatever faults are due to indifferent execution or skimping, the head-room difficulty appears to have been due to an oversight in the original design.

All the houses have hot and cold water laid on, and gas is supplied in every case. Several of the houses have cement pavings, and the gardens are, on the whole, well laid out and suitably enclosed.

There was no competition in Class III., none of the largest plots being taken up so far as this competition was concerned. It was wise at the start, perhaps, not to overbuild, and before long, when the advantages of these houses are realised, no doubt the work will speedily develop.

The furnishing competition, which formed part of the scheme, fell through.

MAURICE B. ADAMS, F.R.I.B.A.

IMPORTS. Port of Dublin.

July 24—Per Lilla, from Bridgewater, 110 tons bricks, Brooks, Thomas and Co., Ltd. Per Mary Peers, from Rochester, 300 tons cement, A. Agnew.

July 25—Per Winga, from Gothenburg, 635 doors, 401 bdles. mouldings, 8,956 pcs. hoards, 782 bdles. boards, to order. Per Enid, from Port Dinorwic, 185 tons slates, J. Kelly and Son.

July 27—Per Bylgia, from West Bay, 93,283 pcs. deals, etc., W. and L. Crowe, Ltd. Per Lady Wolseley, from London, 600 sacks cement, Wallace Bros., Ltd.

July 30—Per City of Belfast, from Antwerp, 30 cases window glass, H. Sibthorpe and Sons; 3 do., J. Cunningham; 15 do., J. Kelly; 10 do., C. Bull; 81 do., T. Dockrell, Sons and Co., Ltd.; 84 do., J. Arigho and Sons; 6 do., Hoyte and Son; 36 do., to order; 345 steel joists, do.; 8 cases limestone, do.

July 31—Per Minerva, from Oporto, 6 cases slate slabs, to order. Per Bylands, from Savannah, 1,168 logs pitch pine, T. and C. Martin, Ltd. Per Claggan, from Connah's Quay, 121 tons bricks, T. and C. Martin, Ltd. Per Velinbeli, from Port Dinorwic, 100 tons slates, W. and L. Crowe, Ltd. Per Penrhyn, from Middlesbrough, 330 tons cement, J. P. Corry and Co., Ltd.

August 1—Per Snine, from Newport, 46 stds. deals, W. and L. Crowe, Ltd. Per Lady Roberts, from London, 1,500 sacks cement, T. Dockrell, Sons and Co., Ltd.

August 6—Per Lord Charlemont, from Baltimore, 422 pcs. oak planks, to order; 650 bdls. firwood, do.; 350 tons slates, do. Per Velinbeli, from Port Dinorwic, 100 tons slates, Brooks, Thomas and Co., Ltd.

In conversation with a well-known Dublin architect recently, he informed our representative that he had no news to communicate for our columns, and he added that, had as architects found business in Dublin this year, he had it on the best authority that matters were relatively far worse in London. No decent work going, but lots of jerry-building houses run up in the cheapest possible way.

LAW CASES.

Ancient Lights Case.

In the Court of Appeal, before the Lord Chancellor, Lord Justice Fitzgibbon, and Lord Justice Holmes, an appeal was made on behalf of the plaintiffs in the action of *Graut v. Maher*. It was brought from the order of the Master of the Rolls (Sir Andrew Porter), made in June, 1906, whereby he gave judgment for the defendants with costs. The action was brought for an injunction to restrain the defendant, residing at 14 North Strand Road, Dublin, from depriving the plaintiffs from "ancient" light to their shop window, at 15 North Strand Road, Dublin. In May the plaintiffs had re-erected their premises at No. 15, and part of them contained a window looking down Amiens Street. The defendants, in the beginning of May, 1906, extended their premises forward towards the street, and built a brick wall against the projecting portion of the plaintiff's premises, in which the window was placed. The plaintiffs alleged that they had been in enjoyment of the light for thirty years.

The arguments having concluded,

The Court unanimously dismissed the appeal.

Mr. H. D. Connor, K.C., and W. H. Brown (instructed by J. H. Callan) appeared for the plaintiff. Messrs. Molony, K.C., and James O'Connor (instructed by Mr. Cornelius O'Rourke) appeared for the defendants.

Alleged Pollution by Sewage.—Injunction Against Rathdrum Council.

In Chancery Division, before Mr. Justice Barton, judgment was delivered in the case of *Tottenham v. Rathdrum Rural District Council*. This was an action claiming injunction brought by Major Chas. Robt. Worsley Tottenham, of Newtownmountkennedy, County Wicklow, against the Rathdrum Rural District Council. The plaintiff asks an injunction to restrain the defendants from polluting a watercourse or stream near Kilpedder, County Wicklow, and the waters thereof, and from discharging sewage matter into the same, or otherwise interfering with the plaintiff's right to the flow and use thereof in a pure, potable, clean, and uncontaminated state throughout the plaintiff's residence, demesne, and lauds at Woodstock, near Newtownmountkennedy; and the plaintiff asks for an inquiry as to the damages he has sustained. The defence generally traverses the plaintiff's claim, but substantially pleads that the acts complained of were done by them in pursuance and execution of their public duty to provide the inhabitants of the district with a drainage scheme, and the acts were done upwards of six months prior to action, and that same was, therefore, barred by the Public Authorities Protection Act, 1893.

Sergeant O'Connor, K.C.; Mr. Littledale, K.C.; and Mr. W. Gibson (instructed by Messrs. J. K. Toomey and Co., solicitors), appeared for the plaintiff.

Mr. Matheson, K.C., and Mr. James O'Connor (instructed by Mr. J. H. McCarroll, solicitor), appeared for the defendants.

The case had occupied three days at hearing when judgment was reserved, which was now delivered.

His Lordship said he had no doubt there was proof of the pollution of this stream, but as to the Kilpedder villagers' pollution he did not see his way clearly to grant an injunction. But there is clear evidence about the flood-tide which arises, and the arrangements about the tank under the control of the defendants, which allows of the escape of sewage into the stream, and for this an injunction must go. This not to be in respect of escapes of sewage from the yards of the Kilpedder villagers, and it follows that the plaintiff will be entitled to his costs of the action.

Builder's Action for Specific Performance.

In the Chancery Division, before the Master of the Rolls, the hearing of a case of *Smyth v. Gray* was concluded. The action was one in which Patrick J. Smyth, who is a builder and contractor, sought for specific performance of a contract for the sale of a plot of ground situate at Belgrave Road, Monkstown, County Dublin, which was registered by him for building purposes. He also asked for damages for delay in the completion of the contract. The defendant is Miss Cecilia Gray, a lady residing in Yorkshire. It appeared that when the title came to be investigated difficulties arose as to the identity of the premises, and the parties were also at variance with reference to the title itself.

Mr. Sergeant O'Connor, who opened the case for the plaintiff on an earlier day, stated that the matter was a complicated one, requiring considerable investigation, but he was happy to state that the action had now been settled by

consent, on the terms that the contract was to be completed, and possession given within twelve days, and the plaintiff was to be given £125 damages and his costs of the action when taxed.

The Master of the Rolls received the consent, and signified his approval of the course taken.

Mr. Sergeant O'Connor, Mr. Chaytor, K.C., and Mr. Joseph M'Auley (instructed by Mr. P. S. Smith) appeared for the plaintiff. For the defendant—Mr. S. L. Brown, K.C.; Mr. Herbert Wilson, K.C.; and Mr. L. Rosenthal (instructed by Mr. D. O'C. Miley).

M'Kee and M'Nally v. Ballymoney R.D.C.

At the Antrim Assizes in Belfast, before the Honourable Mr. Justice Dodd, a special jury record was held, in which Messrs. M'Kee and M'Nally, contractors, Dungannon, claimed from Ballymoney Rural District Council, £730, in part payment of a contract for the construction of waterworks for Ballintrae, County Antrim. There was a counterclaim for £500 damages, on the ground that the work had not been completed according to specification.

Counsel for plaintiffs—Messrs. John Gordon, K.C., M.P.; Jas. Chambers, K.C.; Henry Hanna, instructed by Mr. John Hoy, Dungannon.

The case having been called, his Lordship asked what were the issues for the jury. On being informed, he stated he was quite willing to try the issue of fact and let it go to the jury, but the engineering and technical aspect of the case he would refer to professional experts. He had a great deal of experience of those cases at the Bar, and had seen two judges try to go into detail in them with disastrous results to everybody.

After consultation between the parties, the case was referred by consent to engineering arbitrators appointed by the litigants, his Lordship electing Mr. Joseph H. Moore, County Surveyor of Meath, to act as umpire.

His Lordship then discharged the jury.

In Lieu of Notice.

At Huddersfield, on the 1st inst., Herbert Edward Medley and Harry Medley, brickmakers, of Kilner Bank, brought an action against George Pollard, teamer, for £2 9s. 6d., of which 18s. 6d. was for a week's wages in lieu of notice to leave, £1 4s. for rent, and 7s. for coal supplied.

Herbert Edward Medley, one of the plaintiffs, gave evidence that the defendant had worked for them some years. His wages were 18s. 6d. a week, with rent, rates, and coals free. On the 5th March defendant said he was going to leave as he would not drive a certain horse which plaintiffs had bought on the previous day, after sending back another one they had bought because defendant had refused to drive it on account of it being fresh and a bit lively. Witness told the defendant he would have to give a week's notice. Defendant said he did not care what he had to give; he was not going to drive. Defendant went home, and shortly afterwards plaintiffs received an order for some bricks from someone at Almondbury. Witness sent for defendant, and told him to take the bricks to Almondbury, but he refused to do so. Witness afterwards told him that they had lost the order in consequence of his action, to which the defendant replied that he was not responsible. Plaintiffs estimated the value of the house in which the defendant lived at 4s. a week, including rent and rates, and as he stayed in it six weeks after he left work they claimed £1 4s. for rent. They also reckoned that there was half a load of coals in the house, for which they charged 7s., and they claimed 18s. 6d. for a week's wages in lieu of notice.

In cross-examination, the witness said that the wages of the defendant were formerly 22s., and they were reduced to 18s. 6d. when he went to the house on the terms of rent, rates, and coals free. The coals would come to 1s. 6d. a week. He admitted that the horse had slight sores on the shoulder and back, under the harness. The defendant did not say he could not drive the horse, because he would get into trouble if the animal was found to be in pain. Witness did not say that the defendant must drive the horse or give up. The horse cost £14 at Bradford.

Harry Medley, another of the plaintiffs, gave corroborative evidence, and said the horse was fit for work, but it was fresh, and the defendant was afraid of it.

Defendant gave evidence, saying he had worked for the plaintiffs and their predecessors for sixteen years. When the plaintiffs got the horse from Bradford he noticed that it was full of sores on the shoulder and the back, just where the harness would chafe them. They were not slight sores, but as big as a five-shilling piece. The horse was not fit to work. He worked the horse, and during the 3rd of March he sent for Herbert Edward Medley, who came to

Damside, and he (defendant) showed him the sores, which he had not seen before, and told him it had taken him all his time to get it up the hill. Medley simply said, "Go on," and went away. Defendant went on working, and at night bathed the sores. The next day he refused to work the horse, because it was unfit for work. Herbert Edward Medley said he would either have to drive it or leave, and he left. There was no agreement when he went to the plaintiffs' house to live as to what the rent, rates, and coal should be valued at. He stayed in the house five weeks after he left the plaintiffs' employment, and there was then no coal in the house.

There was a counterclaim of 6s. 2d. for two days' wages due when the defendant left, and 18s. 6d. for a week's wages in lieu of notice.

The Judge found that on the plaintiffs' claim there was 16s. due to them for the rent of the house, and for that sum he gave them a verdict; but he considered that the horse was not fit for work, that the defendant was justified in leaving without notice, and that when he left there was no coal in the house. On the counterclaim he found for the defendant, 18s. 6d. for a week's wages in lieu of notice, and deducted 7s. 6d. for money the defendant earned after he left by working for someone else, leaving a verdict for him for 11s. on the counterclaim. The Judge, deducting the 11s. from the 16s., gave a verdict for the plaintiffs for 5s., with no costs on either side.

OUR ILLUSTRATIONS.

In this issue we reproduce some rather interesting photographs of Drogheda, including St. Lawrence Gate, Mellifont Abbey, etc. The photos are by Mr. Anthony Colman Scott, Architect.

DISCOVERY IN ART COLOURING.

A new method of colouring which imparts to prints and engravings the appearance of a fine water-colour has been discovered by a London lady, Mrs. Norman, of 162 New Oxford Street. It is the successful result of long perseverance, many experiments, and the sheer necessity of fulfilling an urgent contract.

The discovery, which has effected a revolution in this class of work, gives to the coloured prints a softness of tone hitherto unobtainable. The method is not water-colour, nor pastel, nor oils, but in effect it most nearly resembles high class water-colour painting.

One of its features is speed and consequent cheapness.

NEW TOWER AT TEMPO.

We reproduce on this page an illustration of the new tower and belfry just completed at the Roman Catholic Church, Tempo, County Fermanagh, from the designs of Mr. J. V. Brennan, C.E., Belfast. The new structure has been built with local stone, dressed with Dungannon freestone, and looks exceedingly effective viewed from the town. The inner porch has been laid with a good design in tessellated pavement, supplied by the Porcelain Tile Company, Staffs., and is further embellished with a white Carrara marble font, recessed in wall, supplied by the firm of O'Neill and Company, Divis Street, Belfast. The lead lights have been installed by Phoenix and Company, also of that city, and the contractors, Messrs. McKee and McNally, Dungaunon, who have carried out their work in a very satisfactory manner.

IMMENSE DOCK FOR SOUTHAMPTON.

The London and South-Western Railway Company are about to construct an immense new dock for the use of the White Star Liners and other big vessels which may frequent the port. The water space will cover an area of 16 acres, and the docks and quays adjoining will be provided on the company's spare lands to the south of the large Trafalgar graving dock, which they opened recently. The new dock is to be oblong in shape, about 1,700 feet long, and 400 feet wide. It will contain berths for four vessels about 800 feet long, and will be capable of being dredged so as to give 40 feet of water. Needless to say, no ship has yet been built requiring such accommodation, but the company are looking forward to future possibilities. Besides this huge dock, four outside quays are to be built, which will give accommodation to four vessels from 500 to 700 feet long, and drawing as much as 30 to 32 feet. It is expected that the contract for the work will be let shortly.

HENNEBIQUE PATENT FERRO-CONCRETE.

The principle of the Hennebique system of ferro-concrete is now so well known that it is needless to describe it. Some of the more important of the company's recent works may, however, be mentioned. The Manchester Ship Canal has naturally brought about the construction of a vast amount of docks and warehouses. The Manchester Dock Extension Company, Ltd., lately built some very fine warehouses from the design of Mr. W. H. Hunter, Chief Engineer to the Ship Canal Co. These warehouses were built entirely on the Hennebique system. These sheds are five in number, of a total length of 2,250 feet, by 112 wide and 40 feet 6 inches high to top of parapet. They are built in two storeys, the floors and roof being designed to carry a superload of 30 cwt. per square yard, and are established on a foundation which is part of the very ingenious arched dock walls designed by Mr. Hunter. A continuous balcony 12 feet wide runs along the south side constructed in Cantilever. A bridge of 25 feet span connects the sheds at each floor, and there is a flat roof with a ferro-concrete parapet. Each shed is divided in the centre by a fireproof of ferro-concrete partition and all staircase and interior divisions are also made in this material. The total area of floors amounts to 22 acres, and the contract was completed well within the contract time.

Other works of varying extent have also been undertaken and successfully completed by the company. Amongst these may be mentioned stores at Jarrow, grain warehouse at Waterford, office premises in Hope Street, Glasgow—all important works.

A correspondent informs us that in his neighbourhood, a gentleman, who, until recently, followed the profession of cycle mechanic, has been appointed by the District Council as architect and engineer under the Labourers Act.

Cavan.—At the last meeting of the Urban Council the Clerk read the following letter from Mr. Scott, C.E.:—"I now send you plan and specification of proposed town hall for Cavan. It will be necessary for you to now advertise and obtain tenders, the lowest of which you can send to the Local Government Board, together with application for the loan. I have estimated that this work can be done for £3,000." Mr. Smyth—How much is the loan applied for? Town Clerk—£3,500. Mr. Galligan—Have the Local Government Board sanctioned the loan? Town Clerk—Not yet, officially; but I believe it will be all right; that has come unofficially. Mr. Scott then explained the plan, which, he said, met the views of the Local Government Board Inspector. On the motion of Mr. M'Carren, seconded by Mr. Reilly, the plan was approved of and adopted, and on the motion of Mr. O'Hanlon, seconded by Dr. M'Gauran, it was decided that the plan and specification be sent to the Local Government Board, with a request that they receive the Board's sanction as soon as possible, so that tenders may be invited.



Tempo R.C. Church.

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CONTENTS.

PAGE.

Topical Touches	545
The Belfast Garden Estates Co.—Report of the Assessor	540
Law Cases	...	...	...	...	550
Our Illustrations	...	...	...	...	553
New Tower at Tempo	...	...	...	...	553
LEADER :—					
The Panama Canal	...	...	...	...	554
COMMENTS :—					
Decorative Art in the North	...	...	...	...	558
"Licentiate R.I.B.A."	...	...	...	...	558
Reinforced Concrete	...	...	...	...	561
Building News	...	...	...	...	565
Engineering Items	...	...	...	...	566
The New Lighthouse on the Fastnet	...	...	...	...	566
The Round Tower of York Castle	...	...	...	...	569
Reinforced Concrete—The Indented Steel Bar	...	...	...	...	570
The Exhibition	...	...	...	...	570
Engineering News	...	...	...	...	571
Correspondence	...	...	...	...	571
Contracts	...	...	...	...	571

THE PANAMA CANAL.

The direct connection of the Pacific and Atlantic Oceans is a vision old indeed. It dates back hundreds of years. In our own day it was taken up with a view to practical realisation, and though a good many years have now passed since the modern project was initiated, we are still a very long way from the solution of the problem of uniting the great oceans of the East and West. Even soon after the discovery of America, the obstruction caused to navigation by the isthmus of Panama was felt. In modern times, with the vast increase in ocean traffic, needless to say, this has become intensified. In more recent years the great developments in the far East have still further accentuated the want of direct means of communication between the two oceans. Only the other day the United States Government, desirous of transferring a fleet from the Atlantic to the Pacific, was faced with that appallingly long journey round Cape Horn, all because of that one narrow little strip of land joining North and South America!

So far back as 1523, Charles V. of Spain sent from Valladolid to Ferdinand Cortez an order to search out carefully along the east and west coasts of "New Spain" the solution of "the secret of the Straits." Ever since then the "secret of the Straits," to all intents and purposes, remains unsolved so far as navigation is concerned.

The true solution of "the secret of the Straits" was the text upon which M. Phillipe Bunau-Varilla based a very learned and exhaustive paper, read before the Society of Arts in London some time ago.

Years ago the great success, scientific, commercial, and political, of the Suez Canal again directed attention to the Panama problem, and to its solution the veteran engineer, Ferdinand de Lesseps, applied himself.

Cortez and his successors, when they spoke of "the secret of the Straits," believed they would find it in a line of fracture concealed between the two continental masses. Now, Cortez failed to find anything precisely of this kind, but the whole object of M. Bunau-Varilla is to show that by its natural topography and hydraulic situation, and only by the harnessing of the hydraulic power available, is the problem soluble within reasonable limits of time and money. M. Bunau-

Varilla speaks with great authority, for he was not alone Engineer-in-Chief to the "Universal Company of the Panama Canal" (formed in 1881), but has united years of the closest study to vast personal and practical experience of this question. He was (in 1884) in close co-operation with M. de Lesseps on the original scheme, and later became himself the chief engineer. Upon the utilisation of the hydraulic power he relies wholly for a speedy realisation of the project, and he proceeds to show that the system in use by the present American Company since 1904 is wrong in principle, prohibitively costly and slow, as well as regardless of the experience gained by the French companies. It is not alone in the method of working, but in the design of the canal, that M. Bunau-Varilla differs from the present engineer's plan, which he declares to be wholly wrong and based upon a misconception.

First as to design, M. Bunau-Varilla's plan is a practically free straits, and differs from the sea level canal as originally conceived by M. de Lesseps, and the sea level canal of the Isthmian Canal Commission, and submitted to a Board of Engineers by President Roosevelt in 1905. Both these latter were canals communicating freely with the Atlantic (the tides of which at Colon are insignificant), and closed to the Pacific with locks; these locks prevent the Pacific tides (which attain 10 feet) from penetrating into the canal, and from producing currents interfering with navigation. They are similar in plan, but differ somewhat in section.

M. de Lesseps' canal had—

Depth of water	...	...	29.5 feet
Width at bottom	...	...	72.1 "
Width at waterline	...	...	131 "

The Isthmian Canal—

Depth	...	...	35 feet
Width at bottom	...	...	150 "
Width at waterline	...	...	220 "

M. Bunau-Varilla's plan is a waterway, which he calls "the Straits of Panama," submitted by him to the Consulting Board in 1905, is free of all locks, and communicates freely with both Atlantic and Pacific.

Dept at lowest tide	...	...	45 feet
Width at bottom	...	...	500 "
Average breadth at waterline	...	...	600 "

or, roughly, three times broader, and one-fourth deeper, than any locked canal ever conceived across Panama.

One great distinction in M. Bunau-Varilla's scheme is the absence of locks, with the consequent free navigation. It has been asked is this possible. The author answers "Yes" very decidedly, and gives scientific proofs. Three factors require to be considered in this connection. First, variation in tides. As already mentioned, there is no great variation at Colon, and at the Pacific side it is not very great. As far as level is concerned, there is no reason why the canal should not free—the difference is hardly great enough. Next, as to the effect of the tides upon navigation by the production of currents. In 1856 M. Lieussou, of the French Naval Hydrographic Corps, calculated the flow produced in the flood currents of the Suez Canal at a maximum of 1.16 metres per second, and the maximum of the ebb currents at 0.97 metre per second. This calculation was proved to be practically accurate in practice since the opening of the canal. Next, the effect of climate—i.e., heavy rainfall upon an open strait. M. Bunau-Varilla says if Panama were as dry as Suez, the question would hardly arise at all. If constructed of the dimensions he indicates, M. Bunau-Varilla declares there can be no currents more inconvenient to navigation in his "Straits of Panama" than in the Seine or the Thames. His plan, he holds, is the only one that will ensure a rapid and free passage in four or five hours, the only waterway free from all artificial works, locks, and dams, and the only one protected from accidents, explosions, destruction in case of war, or earthquakes.

So much for the various plans. It will be remembered that the original conference summoned in 1879 had before it two projects which they favoured—one by

de Lesseps, the other by M. Godin de Lepinay—and in 1881 the first scheme was undertaken by M. de Lesseps. In 1884 the final plans were approved; in 1886 M. Bunau-Varilla was engineer in chief charge; in 1888 he formed lakes or ponds for hydraulic dredging, which method he now holds to be the only practicable way by which the work can be accomplished within a reasonable time and within a reasonable cost.

During several years the work proceeded slowly, under incredible difficulties and under deplorable climatic conditions. In 1887 M. Bunau-Varilla proposed his method to the old Panama Company. At the end of 1888 the work was interrupted, at which time the total cubic volume executed by the Lesseps Company amounted to 72,000,000 cubic yards, or an average of 1,000,000 cubic yards per month during six years of effective work. Between 1894 and 1904 the New Panama Company excavated 8,000,000 cubic yards, making a total of 80,000,000 up to 1904, when the American Government purchased the canal. In 1901 the Isthmian Canal Commission issued a report, and in 1904 the purchase by the United States Government was completed.

In 1905 an International Commission of Engineers sat on behalf of the American Government, and before it M. Bunau-Varilla gave evidence and propounded his theories. This Commission had, after the lapse of twenty-six years, precisely the same other theories as had de Lesseps' Congress in 1879. The Board of 1905 again stupidly (as M. Varilla says) adopted a canal form.

M. Bunau-Varilla says that the works of the old French company now present perfect conditions for adoption of his method of dredging, from lakes formed at intervals, and affording suitable means for transport of material.

Since the recommencement of the works in 1904 by the American Government, up to the end of 1906, the excavation amounted to about 4,000,000 cubic yards. The Government has on these works expended £8,000,000, or seven million dollars more than was paid to the French company for the whole works, plant, installation, etc., with its 80,000,000 yards of excavation! With a higher total expenditure, four million cubic yards are excavated in three years, as against 72,000 in six years. Up to the present, says M. Bunau-Varilla, the Americans have only met with bitter surprises and disappointments, consequent on their allowing national prejudices to blind them to obvious scientific and practical truths.

M. Varilla's paper is, indeed, a great and notable engineering address, full of that logical thoroughness so characteristic of the French, especially of French scientists, that we venture the hope that it may yet bear fruit.

We have noted sufficient to indicate that M. Varilla is a very severe critic of the United States Government, in their methods, their engineers, and their general handling of this great scheme of world-wide importance since it came under their control. In 1904 this change of ownership was effected. The American engineers made their own valuations, paid their own price, and took over the whole scheme, lock, stock, and barrel. If M. Varilla's figures are accurate—and there appears no reason to doubt them—the Americans have, to put it mildly, miserably muddled the whole business. True, they got the works cheap—very cheap—far below their value—but they seemed to be alike incapable of profiting by their good fortune, the advances of science, or the valuable experiences gained by their predecessors, all of which were freely placed at their disposal. As we have already noted, so far back as 1886 M. Varilla had found that the ordinary methods of excavation, with the great attendant difficulties of transporting the excavated stuff, were cumbersome, costly, and wanting in engineering originality. True, the time-honoured way of making a cutting is to dig out the stuff, but just as when a sewer has to be carried below a certain depth, experience teaches that it is generally cheaper and simpler to sink shafts and drive the heading, instead of making a cutting, similarly, M. Varilla came to the conclusion

that there were better methods of reaching the bottom levels of the canal than by picking out every yard of stuff dry; he formed the opinion that if he could, by damming or otherwise, work a dredger, the greater depths might be much more simply, quickly, and cheaply reached. He put this recommendation before the French Company, for whom he was then acting, and whilst he was still in control it was tried and found effective.

When the American Government purchased the works, they appointed an International Engineering Commission to consider the design of the canal and everything connected therewith. The majority of the Commission was composed of American engineers, but several European countries were represented, the Consulting Engineer of the Suez Canal Co. being the French representative, and Mr. Hunter, the engineer of the Manchester Ship Canal, the English representative. Although this Commission eventually did not adopt M. Varilla's advice, and reverted simply to a reconsideration of the matters that were before the French Commission of 1879, yet a minority of the Commission, and notably the French engineer of the Suez Canal, with Mr. Hunter, strongly supported M. Varilla's theory as to dredging, Mr. Hunter having successfully and extensively followed this method in the construction of the Manchester Ship Canal. The French engineer had also extensive acquaintance with the method recommended by M. Varilla. Moreover, since the time the system was used by Mr. Hunter at Manchester, and M. Varilla at Panama, the appliances have been greatly improved, and reliable evidence was given to prove that the excavation could be dredged cheaply and well, and even in rock; and, taking it in the bulk, the Panama cuttings are not extensively rock, though rock, of course, is frequently met with.

Yet, notwithstanding these facts, it was after the enquiry put forward to the public that dredging was prohibitive in cost.

M. Varilla has behind him, as to methods, the record that in six years 72 million cubic yards were excavated, while the result of the American refusal to adopt newer methods is that four million yards have been excavated at a greater cost than the whole concern was purchased for, and this notwithstanding that practically all the French plant, houses, hospitals, etc., are still standing and in use, the extent to which these were added to by the Americans being small.

M. Varilla does not hesitate to say—and seemingly with good reason—that the cause of the rejection of more modern methods is simply what in this country would be called "insular prejudice," and in America may be termed Yankee prejudice. Yet, as M. Varilla points out, even the basis of the scheme adopted, and lauded as the native American design, is simply the scheme of M. de Lesseps' old rival, M. de Lepinay, in 1879—purely French in its origin and conception.

It would be unbecoming for the ordinary critic to pass *ex cathedra* judgment upon matters of such high engineering policy; but, granted that considerations of economy and engineering difficulties can be surmounted, there can be no comparison between the advantages of either a locked canal and an open waterway, such as M. Varilla suggests, approximating to the character of a natural strait; while as to methods, that which the experience of the engineer of the Panama Canal found satisfactory in 1888, and the engineer of the Manchester Ship Canal endorsed with his experience, ought to be equally adaptable in Panama, particularly as, M. Varilla emphasises, the works are now in a perfectly ideal condition for the trial and use of his method. Refusal to realise and benefit by past experience will, he predicts, result in enormous outlay and waste, and retard the progress of the work so much that the present generation will not see the completion of the canal.

In the interests of the practical application of science, experience, and common-sense to engineering practice, it is to be hoped that the American Government, chastened by their costly experience of the past few years, may yet see their way to re-open the matter, and at least give M. Varilla's theory a fair trial.

COMMENTS.

Decorative Art in the North.

During recent years there has been quite a notable revival of interest in matters of decorative art in Belfast and the surrounding counties. This has manifested itself in the school of art, in the holding of various local exhibitions, and by a variety of other ways, all of which we trust may tend to improve the inartistic aspect of the average Irish home, and remove the taste for cheap and nasty ornaments, unfortunately so prevalent. The holding of local exhibitions may do much good in this way.

The other day at Portrush such an exhibition, by "The Irish Decorative Art Association," was opened. The President of the association, Mrs. W. J. Fennell, wife of Mr. W. J. Fennell, F.R.I.B.A., architect, Belfast, made a statement explanatory of the aims and objects of the society:—

The name, "The Irish Decorative Art Society," gave at once the cue to its aims and to its work, and the beautiful examples of applied ornament which the audience saw before them were evidences of how a great and noble art can be brought within the reach of all. While the members of the Association made this their chief aim, they joined hands with earnest workers in kindred branches, beautiful specimens of whose art and handicraft would be seen on inspecting the exhibition. The national art of Ireland stood alone—clear and defined, glowing with life and vigour, free and unfettered, and decisive in its character—amongst the national ornaments of the world, and when one paused to consider, the thought came very forcibly to them how few of the nations now existing can claim an independent ornament, unhampered by external influences and capable of almost universal development. Therefore, they in Ireland felt a glow of pride when they looked on the fine examples of the rich Celtic work, no matter from what dimly-distant sources flowed its first conception, and many would have them believe it came from the utmost ends of the earth. The early masters of the art, from the fifth to the tenth centuries, seized and worked it up to the perfection of its fascinating subtle beauties, and it now stands alone as a purely national ornament of Ireland. They believed that true art never dies; theirs was still alive, full of action and energy, generous in lending itself to all requirements, which in itself is a factor in the spirit of inspired art, and they found it working its gentle charm with all the love of facile adaptability on the vast variety of materials which art and craft pressed into service. It was to this end their Society worked, and in their own way they endeavoured to carry the beautiful Celtic spirit into all they did. She thought they would agree with her that they had not been unsuccessful. With an art of their own—a beautiful, cheerful, sunny art—they strive to bring it within the reach of every Irish homestead, be it the stately palace of the peer or the lowly cottage of the labourer, and they hoped to see in the near future in every home some feature of decoration, even if only a very small one, characteristic of the Irish race, in their Irish homes, and also carried from their shores as mementoes of a sojourn here, as well as a thing of beauty, because it was of pure art, and, therefore, worthy of a place of honour in many a home beyond the seas.

"Licentiate, R.I.B.A."

The Royal Institute of British Architects have decided upon altering the constitution of that body, and the creation of a new class of members, to be known as "licentiates." This decision is very unfortunate, and we cannot understand how it can ever be acceptable, either to the existing fellows and associates or to the practitioners from amongst whom it is proposed to draw the new class.

The new class is to consist, put bluntly, of persons unfitted for admission to the class of fellow or associate, and every person joining as licentiate tacitly admits such to be the fact. The licentiates will have no power of voting or voice in the affairs of the Institute, the only privilege accorded them being liberty to tack the letters "Licentiate, R.I.B.A." after their names, together with the right to one copy of each number of the Institute "Journal." We doubt very much that this new departure will attract to the ranks of the Institute many qualified men. A sense of self-respect will probably prevent them from accepting and wearing such a badge of inferiority. There are, doubtless, throughout the

country many architects who might have difficulty in qualifying for election as fellows, and who are too busy or too well on in years to sit down to the study of a three or five years' course, but are nevertheless *bona fide* architects. For these men the new class will present few attractions. The class to whom it will most appeal is the ignorant and unqualified, so prominent of late years.

To the existing fellows and associates of the Institute the creation of the new class seems hardly fair. If membership of the Institute has any professional, or, more correctly, commercial, value with the public, the public will be slow to discriminate between "fellow," "associate," and "licentiate." In fact, to the uninitiated the term "licentiate" conveys a higher status than "associate"—surely an anomaly. The associate class have already some ground of complaint in reference to the admission to the fellowship class, but it is completely overshadowed by the present innovation.

The public is most hardly treated of all. Membership of the Institute, either as fellow or associate, is supposed to be a guarantee of an architect's professional capabilities, at all events up to a certain point. How on earth, then, is the public to discriminate between these fine distinctions? and is not the value of the Institute diploma materially lessened?

We do not know what position the Council of the Institute will take up when applications for admission as licentiates come before them. If they enforce anything like a strict standard, they will scare away applicants; if they are lax, they will flood the country with a host of unqualified men, dubbed "Licentiate, R.I.B.A.," who will pose and advertise themselves as superior to the more self-respecting men, who prefer to remain outside, and who are less kindly disposed towards the uses of advertisement.

Reinforced Concrete.

Various writers upon ferro-concrete, or reinforced concrete as it is variously styled, have constantly observed that while America and foreign countries have almost, without exception, adapted their building bye-laws and regulations to the use of this new and popular material, the United Kingdom has almost ignored the existence of such a combination of materials, so far as the intelligent framing of bye-laws is concerned. The subject was raised in the House of Commons lately by a question addressed to Mr. John Burns as to whether it was a fact that the Local Government Board limited the period for repayment of loans in all cases where ferro-concrete was used as the chief material.

In his reply, Mr. Burns stated:—"I am advised that it is doubtful whether ferro-concrete is a suitable material for permanent structural works under all conditions, and that there is need for caution in dealing with it. The Local Government Board have had under their notice examples of the failure of works constructed with it. I believe that this material is intended to be used in the construction of the new General Post Office, and it is the case that it has been used for some years on the Continent and in the United States, but its use has not always been successful. I am not at present satisfied that the periods allowed for the repayment of loans for works constructed of ferro-concrete can properly be extended."

Such a reply must be regarded, by all interested in building or engineering construction, as eminently unsatisfactory, and betraying a complete want of "touch" with the progress of modern building construction. It is impossible to reconcile the reply with the findings of the practical, thoroughgoing United States Commission which enquired into the San Francisco fire, which was to the effect that, of all others, steel-framed buildings had stood the shock of earthquake and fire best of all. It follows, as a natural consequence, that a steel framing in its most perfect form is when it is enveloped in, and forming an integral part of, a body of concrete, forming practically a monolith. Mr. Burns, too, apparently overlooked that, as we understand, the Office of Works in England have adopted this form of construction for the new General Post Office.



Bawnboy.—The Bawnboy Rural District Council have under consideration the building of 49 labourers' cottages in that portion of the county. The Clerk to the Council has estimated that the cost of the scheme will be about £9,677.

Ballymena.—Tenders are invited for the erection of a new bank house in Ballymena for the directors of Belfast Banking Co., Ltd. The quantities have been prepared by Messrs. W. H. Stephen and Son, Donegall Square, North, Belfast. The designs and specification are by Messrs. P. Close and Son, Donegall Square Buildings, Belfast. Tenders will be received up to Thursday morning, 15th August.

Belfast.—The Board of Guardians of the Belfast Union invite proposals for making a strong room, erecting a circular stair, heating clothing stores, and carrying out alterations in clerk's office in Workhouse, in accordance with plans and specifications prepared by Messrs. Young and McKenzie, Scottish Provident Buildings, Belfast. Tenders, endorsed "Strong Room," will be received in Boardroom to noon, 13th August.

The Harbour Commissioners are open to receive tenders for the erection of a goods shed on the South Quay of the York Branch Dock according to the designs of the Harbour Engineer, W. Redfern Kelly, M.Inst.C.E. Tenders close 19th August. They are also open to receive tenders for the same date for a quantity of sawn pitch pine, greenheart and American rock elm timbers; particulars to be obtained from Mr. W. Redfern Kelly, engineer. The above is in connection with the building of a new shed at a cost of £7,000 approximated, and the making of and enlarging wharf to give a 15 ft. depth of water at low tide.

The City Council held a special meeting last week in the City Hall to pass a resolution applying the Infectious Disease (Notification) Act, 1889, to the disease known as "cerebro-spinal meningitis." For the purposes of acoustic experiment, the meeting was held in the Banqueting Hall instead of the Council Chamber, but the result was by no means encouraging. The Lord Mayor said they had heard the resolution, and he hoped they had heard it as well as if it had been proposed in the other room (laughter). The acoustic properties were, he was afraid, quite as bad as in the Council Chamber. (Several Councillors—"Worse.") It was an interesting experiment, and he thought further investigation would be necessary before they arrived at a decision (hear, hear).

Ballymoney.—An important event in Masonic circles in North Antrim took place on Friday on the occasion of the dedication of the new Masonic Hall in Ballymoney. The visitors were one and all loud in their praises as to the admirable manner in which the work had been done, the hall being considered, with one exception, the finest in the province.

Bray.—This week the Bray Public Library Committee of the Urban Council have received pleasing and most gratifying information that Mr. Andrew Carnegie will be glad to contribute the sum of £2,000 for the erection of a free public library in Bray, on condition that the Public Libraries Act be put in force in the district, and that a rate of 1d. in the £ be levied, to be devoted exclusively to the maintenance of the library, and that a site be given for the building, but not to be a burden on the library rate. Already the Libraries Act has been enforced, and the penny rate levied, whilst an appeal is about being made to supplement Mr. Carnegie's generous gift for the erection and equipment of the building. Mr. Lee, the Chairman of the Public Health, has kindly offered to contribute £100, whilst Mr. McCormick, it is stated, would grant a site on the Florence Road, Bray.

Crawfordsburn.—Tenders are invited for pulling down and removal of old Crawfordsburn House. The old material, including lead, plate-glass, doors, sashes, and frames, and all other woodwork, to become the property of the party whose proposal is accepted. The slates and old stones of walls, excepting sills and other cutstone work, will remain the property of Colonel Sharman Crawford. Mr.

Vincent Craig, F.R.I.B.A., 22 Donegall Place, Belfast, will receive applications.

Clara.—The Select Vestry of the parish have signed a contract with Mr John Reid, builder, Malahide and Dublin, for a new glebe house, according to designs and specification of Mr. R. Caulfeild Orpen, South Frederick Street, Dublin.

Castlereagh.—A new memorial hall and schools are about to be built at Castlereagh, according to the designs and specification of Messrs. W. H. Byrne and Son, 20 Suffolk Street, Dublin. The quantities have been prepared by Mr. D. W. Morris, 68 Harcourt Street, and tenders will shortly be invited.

Castleblayney.—Labourers' Cottages Repairs.—At the monthly meeting of the Castleblayney Rural Council, the tenders of Mr. H. McAdam for repairing fourteen labourers' cottages at £65, and that of John Brannigan for repairing eight cottages at £40 were accepted. The former, it transpired, were built ten or twelve years ago, and the Clerk said he estimated the rent received at over £33 per annum, and that for ten years would be about £333. Several of the Councillors present considered that these cottages were very expensive on the rates, and the Chairman declared that they were a curse.

Convoy.—Tenders were received up to and including Friday by the Rev. James Beattie, Riverdale, Convoy, for additions and alterations to the Manse, Convoy. Mr. John M'Intyre, of Letterkenny, is the architect.

Down.—The Committee of Management of the Down District Lunatic Asylum, Downpatrick, require a properly qualified clerk of works to superintend the construction of sewage purification works and other works. Applications to be lodged on 16th August.

Dublin.—The ceremony of laying the corner stone for the new Drumcondra National Schools by Lady Talbot de Malahide took place on 30th ult. The plans and specification have been prepared by Messrs. Batchelor and Hicks, 86 Merrion Square, Dublin. The contractors are Messrs. Farmer Bros. The total expense, when the work is finished, will be about £1,000.

A new model laundry is being erected at Dolphin's Barn for the White Heather Laundry Co. Messrs. A. Hull and Co., Ringsend Road, are carrying out the building work, according to the designs and specification of Mr. F. Hayes, M.R.I.A.I., 24 Nassau Street, Dublin.

In the Council Chamber, City Hall, Mr. A. D. Price, M.Inst.C.E., Engineering Inspector Local Government Board, held a sworn inquiry into an application by the Corporation of Dublin for a loan of £10,000 for the purpose of making advances under the Small Dwellings Act, 1899, to borrowers on mortgage of the houses which they desire to purchase. Mr. Price explained that due notice of the application was given, but no objection to the proposed loan was received. The Town Clerk explained that the loan was asked for in obedience to a resolution passed by the Corporation at its meeting on June 10th last, viz.:—"That the Town Clerk be instructed to apply to the Local Government Board for their sanction to a further loan of £10,000 odd to meet advances to borrowers under the provisions of the Small Dwellings Acquisition Act, 1899." Mr. Kerrigan, City Accountant, informed the Inspector that the amount received from the Board of Works under this Act up to the present was £23,752, and that all that money had been advanced to borrowers. The total debt of the city up to 15th July, 1907, was £2,543,125 19s. 11d. The Town Clerk said that he observed by the Government returns that Dublin had the smallest debt of any city in the three kingdoms. Continuing his evidence, Mr. Kerrigan said that the sanitary indebtedness of the city was £1,021,519 8s. 6d., and what was regarded as non-sanitary debt was £1,521,606 11s. 5d. Their margin of borrowing powers had been considerably increased of late, owing chiefly to the increased valuation of the city. Now, including the added areas, that was £939,657 5s., and there was a margin of borrowing power of £734,077 18s. 4d. on the 15th July. In answer to the Inspector, witness further said the total rate, including everything, for the year ending 31st March next, was 10s. in the £. A rate of 1d. in the £ was being levied under the Small Dwellings Acquisition Act, which brought in, roughly, £3,600.

Dundalk.—Tenders have lately been received for building a new wing to St. Mary's College, Dundalk, for the Marist Fathers. The contract was given to Mr. James Wynne, contractor, Dundalk. The architect is Mr. T. F. McNamara, 50 Dawson Street, Dublin, and the quantities were prepared by Mr. James Mackey, surveyor, 58 Dame Street, Dublin. The cost is about £7,000.

Ennistymon.—The Catholic Church is about to undergo extensive alterations and additions, according to the designs

and specifications of Mr. Anthony Scott, M.S.A., Dublin. The contract has been secured by Messrs. Torpey and Connolly, contractors, of Ballyglass, Co. Galway.

Edenderry.—Edenderry No. 3 Rural District.—The District Council of the above Rural District have lodged with the Local Government Board for Ireland an application for an Order confirming an improvement scheme made by them under the Labourers (Ireland) Acts, 1883 to 1906, at an estimated cost of £12,770. Mr. Robert Fitzpatrick, Inspector for the Local Government Board for Ireland, has been appointed to hold a local inquiry as to the propriety of confirming such scheme. The local inquiry will be held on Monday, the 12th August.

Edenderry Union.—The Board of Guardians will to-day, 10th August, consider tenders for papering and painting the interior of the Edenderry dispensary residence.

Enniskillen.—A new hall is to be erected by Messrs. Humphreys, Ltd., Stephen's Green, Dublin, for the Enniskillen Devenish Branch Irish National Foresters' Benefit Society. The interior is to be lined with varnish boarding, and the walls outside covered with corrugated iron sheets. The roofing will be of Messrs. Humphrey's new Italian pattern, and will give a neat and effective appearance to the building. The foundations are at present being prepared by Mr. George Hynes, contractor, Enniskillen.

Creystones.—A public library is to be built at Greystones. Mr. Carnegie has given a grant, and the owners of the Burnaby estate a free site. Messrs. Doolin, Butler, and Donnelly are the architects.

Glennamaddy.—The Glennamaddy Rural District Council have made an improvement scheme in pursuance of the Labourers (Ireland) Acts, 1883 to 1906. The estimated cost of the scheme is £35,611.

The Board of Guardians of Glennamaddy Union have received tenders for re-erecting the nursery ward of the Workhouse which was destroyed by fire.

Corey.—Ardnamine, the residence of Major A. W. M. Richards, D.L., Gorey, is at present undergoing alterations and additions. The work is being carried out by Mr. Duncan, Gorey, under the designs and supervision of Mr. R. Caulfeild Orpen, South Frederick Street, Dublin.

Kingstown.—Messrs. J. Ring and Sons, Kingstown, are re-building four houses in Cumberland Street. The work is being carried out from the plans of Mr. Johnstone, estate engineer, the object being to improve the appearance of the entrance to Kingstown.

Mr. Bowers, contractor, Ballybrack, is building two villas on Sandycove Road for Mr. Randal McCollum.

Mr. Frazer, contractor for the new Victoria Baths, Kingstown, is making good progress with the work. Extensive blasting operations have been carried out, necessitating a large expenditure of powder. The Sandycove Baths are now finished, and open to the public.

Kilkenny.—Messrs. W. K. Cleere and Son, builders and contractors, Kilkenny, are at present carrying out the erection of a terrace of five dwelling-houses in Michael Street for Mr. W. Healy, grocer and spirit merchant, John Street, Kilkenny.

Kinsale.—At their meeting on Wednesday next the Rural District Council of the Kinsale Rural District will consider tenders for building 86 single labourers' cottages, and for fencing 89 plots.

Limerick.—The St. Michael's Temperance Society are about erecting a new hall on a very convenient site at the corner of Henry Street and Cecil Street, Limerick. The hall, which will be three storeys high, will have all the comforts of a well appointed club, with a frontage to both streets. It is also intended, in connection with this contract, to build three residential shops with commodious living rooms, which, with the Temperance Hall buildings, will make a very effective corner block, with a frontage of 104 feet to Cecil street and 82 feet to Henry Street. The architect is Mr. Brian E. F. Sheehy, C.E., 57 George Street, Limerick. The quantities were prepared by Mr. James Mackey, surveyor, Dublin.

Milford (Co. Donegal).—Tenders were received for the erection of office-houses for the Reformed Presbyterian Manse in Milford, Co. Donegal.

Monaghan.—Mr. P. Nolan, Monaghan, has almost completed new premises for the Diamond Drapery Co., Monaghan. The designs and specifications were prepared by Mr. F. Hayes, Nassau Street, Dublin.

Rochfort Bridge.—A new deaf and dumb institute at Rochfort Bridge (Co. Westmeath), is at present being built for the Sisters of Mercy. The work is being carried out by Mr. Lynam, Enniscoffey, according to the plans and specification of Mr. Anthony Scott, 34 Lower Sackville Street, Dublin.

Skibbereen.—Local Government Board and Architect.—The Local Government Board wrote to the Board of Guardians last week as follows:—"Adverting to previous correspondence and to minutes of proceedings of the Board of Guardians of the 15th ult., they desire to state that they are advised that the plans, specification, and estimate for the proposed medical officer's residence for Drimoleague, which were prepared by Mr. T. Donovan, and selected by the Guardians, are deficient in the following respects:—1—Indifferently drawn plans, and not coloured or fully dimensional. 2—No sanitary conveniences of any kind provided in the dwelling-house or water supply. 3—The fire openings and smoke flues are too small. 4—Not sufficient head room to staircase, which has a sloping ceiling, and is unsightly both inside and outside. 5—The principals indicated on section of out-offices are quite unnecessary. 6—Prices in estimate are too low; roofing and slating at 47s. 6d. per square as against the lowest price, 65s.; painting is put down at £5, as against £25 required. Concrete floors at 1s. 6d. per square yard, as against 3s., the usual price, and flooring at 5s. per square. The Local Government Board have to add that they are not prepared to sanction Mr. Donovan's employment as architect in connection with the building of the proposed dispensary residence." The matter was adjourned to next meeting, and the Clerk was directed to communicate with Mr. Donovan in the meantime.

Sligo.—Alterations to premises, including a new shop front, is about to be commenced at the establishment of Messrs. East Bros., drapers, Sligo, and tenders, will shortly be invited. The plans and specifications are by Mr. Anthony Scott, M.S.A., 34 Lower Sackville Street, Dublin.

Vicarstown.—Alterations and additions to Vicarstown Catholic Church are about to be commenced, and tenders will shortly be invited. The plans and specifications are by Mr. Anthony Scott, M.S.A., 34 Lower Sackville Street, Dublin.

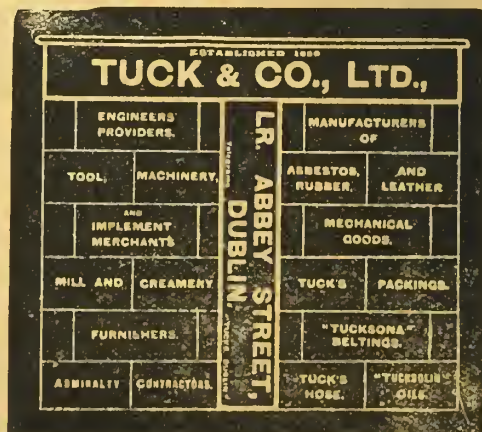
Westmeath.—Messrs. McLaughlin and Harvey, Dublin, are carrying out extensions and additions to Knockmark, the residence of Mr. T. B. Donnelly, Drumcree. The designs and specifications are by Mr. R. Caulfeild Orpen, South Frederick Street, Dublin.

Waterford.—New premises for the Provincial Bank of Ireland are being built on the quay and corner of Barrowstrand Street. The building is designed in the Georgian style and faced throughout with limestone. It is to be finished with a copper dome and is to be constructed on a raft of reinforced concrete. Mr. George Nolan, of Waterford, is the contractor. The designs and specifications are by Messrs. Batchelor and Hicks, 86 Merriion Square, S., Dublin.

TENDERS.

Dublin Corporation Library, Great Brunswick Street.

	£	s.	d.
G. Langley	9,997 0 0
J. Donovan	10,150 0 0
T. Mackey	10,200 0 0
Collen Bros.	10,300 0 0
P. J. Kinlen	10,493 15 7
McLoughlin and Harvey	10,500 0 0
H. and J. Martin	10,570 0 0
J. G. Crampton	11,000 0 0
J. and P. Good	11,050 0 0
E. Monks	11,290 0 0
J. Pemberton	11,300 0 0
Farmer Bros.	11,960 0 0



ENGINEERING SECTION.

ITEMS.

We referred, in our last issue, to the fact that the *Daily Mail* was arranging for a trial bore to be made in the vicinity of St. Paul's Cathedral. In the interval a pit, some 46 feet in depth, has been driven, and the following strata, in the order given, were reached:—Made ground, containing red tiles and *debris* of masonry, 12 feet 6 inches; virgin soil, 3 feet; potter's earth, 7 feet 3 inches; gravel and clay, 6 inches; sand and gravel, 7 feet 3 inches; red loam, 2 feet; peat, 3 inches; sand and gravel, 3 feet; dark red loam, 6 inches; sand and gravel, 5 feet; and ballast, 1 foot 6 inches. At a depth of 34 feet a stratum of sand and gravel was discovered, heavily charged with water, which, it is stated, does not remain at a fixed level; and at 41 feet a 3-feet layer of London clay was reached. The experiments are being carried out by Messrs. Duke and Ockenden, of 126 Southwark Street, London, and there should not be much delay before the theory, now under proof, is verified or otherwise.

* * * *

The Institute, which represents our architectural brethren in Ireland, is to be congratulated on the result of a decision which the Council arrived at concerning a competition initiated for a sanatorium at Cork. A brief recapitulation of the whole affair will doubtless be of interest to engineers in this country, and may prove an object lesson to them in loyalty. The preliminary conditions of competition for this proposed building, with its highly technical requirements, were unusually drastic, for not only were the competitive designs to include all the plans necessary for the erection of the structure, but were also to deal with the water supply, heating, lighting, *steam cooking*, and *sewage disposal*, and to be accompanied by a specification and detailed estimate. For this combination of architectural and engineering skill one prize of £100 was offered, no assessor was appointed, and the engineer of the County Cork Joint Hospital Board was to carry out the work. It appears that the Council of the Royal Institute of Architects of Ireland circularised the members of that body, pointing out the undesirability of their competing, and, with a loyalty which is highly commendable, no member submitted plans, although many had drawings in course of preparation. An assessor, who is a prominent member of the Institute Council, was appointed by the Joint Board in a very belated fashion, but naturally he declined to act. Consequently the Board have before them, as far as can be learnt, no plans from architects belonging to a recognised society, and it will be interesting to observe what steps will be taken after such a vigorous protest against unfair conditions. The present position of affairs has been brought about by a combination of foresight on the part of the Institute, and of *esprit de corps* amongst its members. It is probably the first instance on record when the action of a professional body has been so unanimously upheld by its members, and we commend it to the engineering profession for consideration. Certainly if a member of the Institute of Civil Engineers be ultimately found to be directly or indirectly connected with the execution of the work, unless solely appointed for that purpose, the Council will be expected to take vigorous action.

* * * *

A case of much interest to municipal engineers was recently decided at Bristol. It appears that a tramway company had used creosoted wood blocks for a road adjoining a nursery, the owner of which brought an action against the company for damages caused to his plants by the creosote. The blocks used were of beechwood, impregnated to the extent of 8 lbs. per cubic foot, or over 1 lb. of creosote to each block. Evidence was given by various experts of the damage that had been caused elsewhere in the neighbourhood of similar paving; Mr. A. J. Souza, Superintendent of Hyde Park, Marlborough House, and Buckingham Palace Gardens, stating that plants in the vicinity of creosoted wood blocks became spotted on the leaves, then on the stems, and finally collapsed and died. Rebutting evidence was tendered, but ultimately the jury found that the plaintiff's plants were injured by the wood paving, and judgment was entered for him. We are unable to comment on the matter, as an appeal will in all probability be entered, but the ultimate issue is one which may prove of vast importance to those who are in charge of our public thoroughfares.

Sanitary engineers are frequently faced with the difficulty of finding a suitable position for the lowest manhole on a drainage system when their client's premises abut directly on the public street. In the case of *Attorney-General v. Ashby*, recently decided, the defendant had endeavoured to solve the problem by forming the manhole in the footway outside his premises, and the plaintiff, at the relation of the Urban District Council, sought and obtained an injunction restraining the defendant. The latter contended that the combined effect of Section 21 of the Public Health Act, 1875, and Section 18 of the Public Health Acts Amendment Act, 1890, was such as to entitle him to have the chamber in the street, and, further, to put in the soil anything which was reasonably necessary to make proper connection between the house drain and the sewer. It was, however, held that the Sections gave no such power, and, as stated, the injunction was granted. Such a result might have been, considered by any engineer, having proper knowledge of his subject, to be a foregone conclusion; the municipal authorities have always been tenacious of their rights in such instances, and invariably make all connections beyond an owner's frontage line previously receiving a deposit, and deducting the cost of such works. Yet verdicts are frequently given which appear to be in every way a contravention of a commonsense view of things, especially in technical matters, so, perhaps, we should be duly thankful that no permission has been granted the householder to add to the present inconvenience of coal plates, pavement lights and area gratings, by decorating the public footpaths with various samples of the galvanised manhole cover.

* * * *

The *Tribune*, quoting a remark of Mrs. Annie Besant at Liverpool, "Man is a builder for immortality, not for a day," is ruefully reminded of the suburban builder who persuaded a friend to inspect a row of new houses he had just erected. Leaving his friend in one house, he went next door. "Can you hear me, Jim?" he whispered through the pantry wall. "Yes," softly answered Jim. "Can you see me?" "No," was the answer. "Them's walls for you," proudly shouted the builder. It would seem not improbable, if all the properties attributed to reinforced concrete be true, that the jerry-builder will have to give place to the new material with the humorist. The chief aim at present amongst our "*science-nouvelle*" architects and engineers is to vie with each other in erecting the highest walls of the least thickness, and covering the largest spans with a minimum quantity of material. The variableness of our climate with regard to temperature, the excessive humidity of the atmosphere, and the elementary principles of acoustics are overlooked in the rage for going one foot better in height and width, and one inch less in thickness than our professional brethren. What matters the discomfort of a thin monolithic slab of an external wall in one of the dog-days? Is not the heat and burden of the day finely tempered by the subsequent moisture which will find its way through during a heavy shower? And as man is a gregarious animal, he surely will not object to hearing every movement of his neighbours from basement to attic! If complaints do arise in this world of grumblers, the walls may be cemented outside and studded inside, the floors may be counterfloored and underfloored and pugged, until both walls and floors are thicker than would have been the case had the old-fashioned methods of building been adopted. And, at all events, the architectural engineer can subsequently talk with some confidence about web members, symmetrical reinforcements, indented bars, and the necessity for exercising careful supervision.

* * * *

The District Council, at their last meeting, passed several recommendations of the County Surveyor in regard to the improvement of the roads in and around Rathdrum. The report that Aughavannagh Bridge is in parts "shaky, distorted, tilted, sagged, bulged, with stones missing and others split," was considered, and a committee appointed to inspect the bridge, upon the repairs of which it is intended to spend £300.

* * * *

The members of the Civil and Mechanical Engineers' Society paid a visit recently to the Rotherhithe Tunnel Works, which are progressing satisfactorily, and which will probably be completed within the next twelve months. The scheme includes both a carriage and footway tunnel, with approaches, between Lower Road, Rotherhithe, and Commer-

cial Road, Stepney, the total length being over 2,000 yards. The open approach is 2,020 feet in length, and the actual tunnel 3,741 feet. The remainder is what is technically known as cut and cover. The under-river portion of the tunnel, 1,500 feet long, has been some time completed. The tunnel is circular in section, the outside diameter of the cast-iron lining being 30 feet, with a thickness of 2 inches under the river, and 1½ inches under the land. This lining is put together in rings, each 2 feet 6 inches wide, and composed of sixteen segments with a key-piece. The faces of the iron at the joints are all machined for a width of 12 inches, and the segments fit metal-to-metal. The contract is being carried out under the superintendence of Mr. Maurice Fitzmaurice, M.Inst.C.E.

* * * *

The work incidental to the erection of a pier at Glen-gariffe, Co. Cork, which is being carried out under the auspices of the Congested Districts Board, is proceeding in that careful fashion which is not always associated with great speed. The pier proper has not yet been commenced, but a new road, some quarter of a mile in length, leading from the main road to the pier, is in process of formation. We believe that this neighbourhood is a congested district according to Parliamentary classification; at the time of the writer's visit it certainly deserved its name, the congestion being such that, even in such a hotel-strewn neighbourhood, previous booking was desirable if one wished to feel secure of a bed. It is interesting to watch the advent of the small steamer which plies between the village and the market town of Bantry, and to endeavour to conceive why this road and pier are being erected. Is it for the few parcels and small consignments of building and other materials which are occasionally brought ashore, or will it be utilised for fish traffic, which scarcely seems of such proportion as to necessitate a large expenditure of time and money to better the existing facilities which have done duty for so long? Undoubtedly it will prove a great convenience for the Sunday tripper from Cork, who prefers the steamer to a coach drive, and to this end the Congested Districts Board deserves the unanimous thanks of the directors of the Cork and Bandon Railway for providing such a useful terminus for their system.

* * * *

West Cork appears to be a hunting-ground for the motorist, whether happy or not the County Surveyor would best be able to judge if he heard the remarks of the car owners who have driven over the roads in his care. However, the scenery appears to amply repay any inconveniences caused by "darning," as the large hotels have erected or are building up-to-date garages, which are generally well occupied. One incident which actually occurred during the writer's stay in the neighbourhood indicates the glorious uncertainties of motoring. Early one morning a landaulette, with brasses bright, and body shining with new paint and varnish, was boarded by a young and possibly a honeymoon couple, the *tout-ensemble*, as the car left the grounds, causing general admiration. At a late hour that night a somewhat tired pair returned, the man having a Stepney wheel over one shoulder, and a spare tube over the other. Anxious enquiries elicited the reply: "We met another ear this side of Cork; I have brought back all of my car that was worth saving!!" The holiday season must be the excuse for the above digression.

* * * *

The Dibdin's slate contact beds for the treatment of sewage, according to all reports, are giving most satisfactory results where they have been erected, and have, in many instances, obviated the use of septic tanks, with all the expense and nuisance which frequently appertains to them. The prophecy that the slate beds would fill up as rapidly as ordinary contact beds has been falsified, for, according to a recent book on the subject, the deposit on the surface of the slates after eighteen months' working is so small as not to appreciably diminish the capacity of the beds. It was also thought that the deposit on the slates, when the valves of the bed were opened, would pass out to the fine beds, but experiments have proved that such suspended matter is only equal to about 2 grains per gallon. Even this could be intercepted by passing the effluent through a process of upward filtration. There is no doubt that slate beds are productive of less nuisance than septic tanks, and the difficulty of dealing with the sludge is reduced to a minimum.

* * * *

The members of the Royal Commission on Coast Erosion will resume their enquiries in London on the return of the various sub-committees which have been visiting the affected districts. One sub-committee has just completed a tour of investigation in Devon and Cornwall; another is proceeding along the coast of Wales and Lancashire. The final report of the Commissioners will scarcely be ready for presentation to His Majesty before the early part of the next Parliamentary Session.

THE NEW LIGHTHOUSE ON THE FASTNET.

By SIR ROBERT BALL, LL.D., F.R.S.

Off the Southern Coast of Ireland, and 4½ miles south-west of Cape Clear, a remarkable rocky pinnacle, known as "The Fastnet," rises in the Atlantic from deep water all round and ascends to a height of 100 ft. above sea level, and upon which for over fifty years there has stood a lighthouse, which it was recently decided should be replaced by a more modern structure. The new tower has now been completed, at a total cost of £84,000.

For the building of the new lighthouse 2,074 stones of cut granite were required, each weighing on an average 2½ tons. It will be admitted that to land all these stones on the Fastnet, and to do so without any serious mishap, was in itself a noticeable achievement. A small steamer was specially constructed to bring the stones from the mainland to the rock. Moored at a safe distance, she raised a stone from her hold to the deck, a wire rope from the steamer's winch and a wire rope from the derrick on the rock were attached to the lewis in the stone, which was then pulled overboard by the line from the rock, while the line from the steamer was drawn out until the stone, just discernible in its submarine course, came plumb underneath the derrick; it was then hoisted up from the deep water, conveyed forthwith to its place in the tower, and there securely cemented in while the next stone was being landed. The building of the tower occupied five years (1899-1903), for the work could only be done in summer, and even in summer the Atlantic weather caused many interruptions. The greatest number of stones landed and set on a single day was thirty-one.

These granite stones were supplied from quarries in Cornwall. Each stone was cut with dovetails, which united the stones of each course horizontally as well as vertically with the courses above and below. Thus the tower is practically a monolith. From its commencement, 6 in. below the high-water mark, to the centre of the lantern, the height is 160 ft., and for the first twenty-four courses the tower is solid throughout.

The illuminant used in the new Fastnet, as well as in many other modern lighthouses, is an incandescent mantle kindled by oil gas. It is impossible to describe its appearance as otherwise than magnificent. At twenty miles distance the flashes, which succeed each other at intervals of five seconds, give the most distinctive character possible. Each flash lasts about the sixth of a second, and up to a distance of ten miles it lights up the ship and the rigging like a searchlight.—From the *Times Engineering Supplement*.

[It seems a pity that, with the magnificent granites available at Galway, Newry, and Castletellan, the authorities could not have seen their way to utilize the Irish material.—Ed. I.B. & E.]



THE ROUND TOWER OF YORK CASTLE. Strange Proposal by the Prison Commissioners.

At the quarterly meeting of the Yorkshire County Committee, held recently at York Castle, Mr. John Hutton (Chairman of the North Riding County Council) in the chair, a letter was read from the Prison Commissioners stating that a communication had been received from the War Office with regard to a defect in the round tower at the south corner of the outer wall of York Castle, and that the question of the advisability or otherwise of demolishing this tower has arisen. The Commissioners inquired whether any historical and archaeological value is attached, locally, to this tower and the adjacent walls.

It was resolved:—

That the Prison Commissioners be informed, in reply to their letter, that the round tower at the south corner of the outer wall of York Castle, and the adjacent walls, have great historical and archaeological value, and that the Prison Commissioners be requested to remedy the defect in the round tower referred to in their letter with the least possible delay.

The tower and the walls were built during the reign of King Edward I., and the tower contains the old sally post. It has stood the brunt of many sieges, and the demolition of this tower is most undesirable. This is the reason that has actuated the committee to request the Prison Commissioners to take the earliest opportunity of repairing the defect in the tower.

LABOURERS' COTTAGES

ARCHITECTS AND ENGINEERS WANTED to write for samples and prices of the cheapest methods for reproducing plans in large quantities. TRACING AND TYPEWRITING done. Drawing Office Materials supplied. Tel. 2278. The DUBLIN DRAWING OFFICE, 17 Westland Row.

REINFORCED CONCRETE.**The Indented Steel Bar.**

Our readers are by now fairly familiar with the main principles underlying reinforced concrete construction. The subject has from time to time been exhaustively dealt with in these columns, most of the best known systems having been separately treated. In addition to this, a



Interior of Warehouse. All Beams and Columns of Reinforced Concrete; no Steel Joists or Girders used.

great deal of ferro-concrete work has been carried out of late years in Dublin and other parts of Ireland, so that many who peruse these lines have had practical experience of the subject. It is, therefore, hardly necessary for us to go into first principles, but we may remark that every day, and in all parts of the world, more and more structures of every kind are being built of concrete reinforced with steel. There seems to be no limit to its usefulness, and the number of those who see in it the building material of the future is growing by leaps and bounds.

Having said so much by way of introduction, we may go on to consider one of the most important principles in ferro-concrete design, and to discuss a few facts which follow from that principle. The principle is that no structure of reinforced concrete can be permanent or satisfactory unless there is a reliable and indestructible bond between the embedded metal and the concrete. All investigations on the strength of reinforced concrete beams are based on the combined and synchronous action of the two materials, and the formulæ which have been evolved for the various systems of construction presuppose such action. It is held, and with truth, that there is great adhesion between a steel bar and the concrete surrounding it, and tests have established this fact, even in the case of very old samples of ferro-concrete. But, on the other hand, it is impossible to foretell all the disturbing conditions to which any structure may be subjected, just as it is manifestly beyond human power to observe the actual behaviour of the metal embedded in the concrete. Take, for example, what happens when a steel bar is subjected to tensional strain. Such a stress must, inevitably, cause a decrease in its diameter, with the result that, if embedded, it draws away from the surrounding concrete. It may

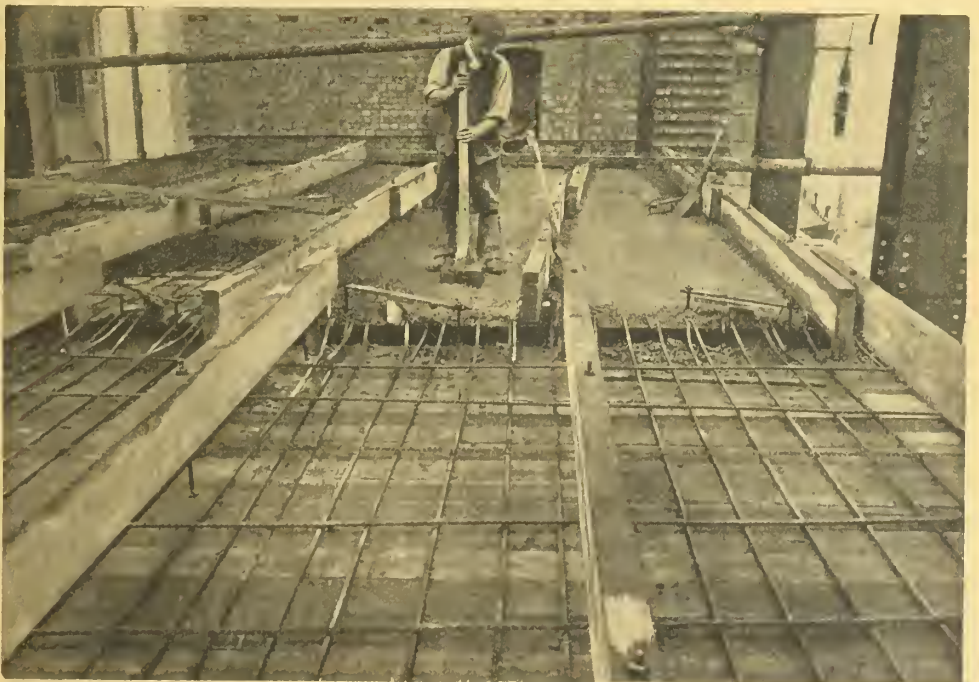
be contended that the contraction is small, yet the reduction in diameter is a measureable one under ordinary working loads, while the adhesion is dependent upon absolute contact, which ceases to exist if there is even an infinitesimal distance between the material.

If this unreliability of adhesion is admitted a mechanical bond becomes at once necessary. But even if the unreliability is denied, where is the disadvantage of the mechanical bond? Is it not an added security, provided always that the bond be so formed as to have no tendency to split the concrete? This requires that the sides of the projections or ribs on the bar shall not vary from a plane at right angles to the axis of the bar by an amount greater than the angle of friction between concrete and steel. The indented steel bar is rolled in such a way that this condition is complied with. It is claimed for it that it is the only bar which can be so rolled.

In addition to giving a continuous mechanical bond, the indented steel bar has a very high elastic limit, amounting to about 55,000 lbs. per square inch, whereas ordinary reinforcing material has an elastic limit of about 30,000 lbs. As it has been established that the factor of safety practically depends on the elastic limit, the value of the indented bar will be at once seen. It is the mechanical bond of the indented bar that permits the utilisation of this high elastic limit, because plain bars would slip before such a limit would be reached.

The indented steel bar requires no special formulæ for the design of ferro-concrete work in which it is used, and it is an economical and safe reinforcement for all systems of construction. The company have, however, developed their own formulæ of design, based on the most modern and scientific practice, and are prepared to give advice to anybody contemplating the design of reinforced concrete work.

It may be stated that the indented steel bar has been almost universally adopted by the American railroads for all reinforced concrete work, such as arch bridges, culverts, viaducts, retaining walls, warehouses, etc. A considerable amount of work has also been done in these countries, including the floors of the Wallford Hotel, Rawson's factory at Leicester, floors for mills in Lancashire, and retaining



Work on the Waldorf Hotel, Strand, London. Method of laying the Bars.

walls for the Selfridge-Waring Stores, Oxford St., London. Over 70,000 tons of these bars have already been used in construction.

The address of the firm is: The Patent Indented Steel Bar Company, Ltd., Queen Anne's Chambers, Westminster, London, S.W., from whom can be obtained all necessary information, including their Handbook of Formulae, containing over one hundred drawings, and illustrations of work done with the indented bar.

THE EXHIBITION.

The large hall at the Ballsbridge entrance contains an exhibit which at once attracts attention. It is that of a stained glass window, by Messrs. J. Clarke and Sons. The subject shows a scene in a series depicting the legend of St. Patrick baptising the two princesses—Fedlem, "the Red Rose," and Ethna, "the Fair," and is taken from the poem by Aubrey de Vere.

The carefulness of composition, accuracy of drawing, and transparency of colour proclaim it at once a masterpiece. A deep border of silver, beautifully designed, gives a pleasing contrast to the darker centrepiece. The technical skill displayed in the rendering of this beautiful subject reflects the greatest credit on the artistic ability and enterprise of Messrs. Clarke and Sons, who have already achieved a high reputation in the production of stained glass windows, and is a conclusive proof that there is no need to go outside Ireland for stained glass work of the highest standard of excellence.

Petrol Safety Gas.

The other evening we visited the stall of the Elwell-Smith Safety Gas Co., of 52 Frederick St., Edinburgh, in the Machinery Hall of the Exhibition. The exhibit comprises a stall lighted most brilliantly and satisfactorily by a quite small petrol gas plant. The light is one of the very best petrol gas plants we have as yet seen, and has the merit of simplicity and safety.

Petrol gas is admirably adapted for use wherever there is not a cheap and good town gas or electric lighting system.

In first cost the plant is, of course, very much cheaper than either electric lighting, or any system of coal or petroleum gas lighting, and the Elwell-Smith Co. claim that their system is considerably cheaper than even acetylene gas.

The generating plant of the Elwell-Smith system is very cheap. Some slight motive power is needed, and is supplied either by a water supply under sufficient pressure, or a small ½-h.p. petrol engine. The plant comprises generator, carburetter, gas-holder, petrol supply tank, and purifier. The method of working is simplicity itself, and the gas is non-explosive. As regards capital outlay, an installation of from twenty to forty lights (each light being equal to forty candle-power) can be supplied complete for £50, while a plant for 700 lights (a pretty big scheme) costs but £450. Certainly very moderate figures.

Any description of gas piping and fittings may be used. The cost of production is equally moderate. The cost of petrol to produce 1,000 cubic feet of petrol gas is only about 1s. 10d.; it works out that one gallon of petrol produces 1,000 cubic feet of gas. Each of the lights exhibited at the stall is forty candle-power, and consumes three feet of gas per hour, or 100 candle-power may be maintained for ten hours at a cost of 1½d., which compares favourably with the estimated cost of acetylene gas, 1s. 3d. for the same lighting; electric light, 1s. 2d.; incandescent coal gas, 2½d. The coal gas is taken at 3s. per 1,000 feet, which is under the Dublin price.

The Elwell-Smith Petrol Gas is very suitable for mansions, hotels, churches, halls, etc., and we recommend any readers contemplating lighting to inspect this light during the Exhibition.

Kingscourt Terra-Cotta.

At their stand in the Irish International Exhibition this company show a great variety of articles made in Irish terra-cotta. The Kingscourt Brick Company are an old concern, but under new management. They have, during recent years, established a very considerably enhanced reputation for themselves. The company make red pressed facing bricks, 2½ and 3½ inches thick; wire cut facing bricks, of a good red colour, for cheaper work. A considerable variety of samples of moulded and ornamental bricks, strings, joints, mullions, and lintels are shown; as are also plain and ornamental copings for boundary walls and barges. A specially interesting and most creditable exhibit is a traceried church window, carried out entirely in Irish terra-cotta. The curves of the tracery are neatly and accurately formed, and for a comparatively young industry this window is really most creditable.

ENGINEERING NEWS.

Ballybay Sewerage Scheme.—The Ballybay sewerage scheme was the principal business before the meeting of the Castleblayney Rural District Council meeting. The clerk announced the receipt of six tenders as follows:—J. Loudon and Co., Belfast, £2,297 12s. 6d.; P. Ritchie, Belfast, £2,323; J. Callan, Castleblayney, £2,838 12s. 10d.; James Wynne, Dundalk, £2,838 15s. 0d.; Grainger Bros., Belfast, £2,850 16s. 11d.; and R. Smyth, Cootehill, £2,877 14s. 9d. Replying to the Council, the Clerk said the engineer's estimate was £2,324 12s. 9d. Mr. James Duffy considered they should ascertain something about the contractors who sent in the two lowest tenders, and it was agreed to defer consideration of the matter, the clerk to write to the two lowest contractors as suggested.

Bangor.—Mr. John McMeekan, J.P., Chairman of the Bangor Urban Council, on the 31st ult. cut the first sod of the new Bangor Waterworks. The work, however, has practically been in hands since early spring. Messrs. H. J. Martin are the contractors. The plans and specifications are by Mr. L. L. Macassey, C.E. The reservoir when finished will cover 50 acres, and be capable of containing 72,000,000 gallons of water.

Bailieborough.—At the meeting of the Bailieborough Rural District Council a letter was read from the Local Government Board refusing to sanction the appointment of Mr. Patrick Brady as architect in connection with the labourers' cottages scheme, on the ground that the action of the Council in allowing him to amend his tender was irregular, and they request that the Council re-advertise for tenders for competent persons to carry out the work. An order was made to advertise for an architect, engineer, or surveyor, the appointment to take place on Monday, 12th August.

Carrickmacross (Co. Monaghan).—At the meeting of the Carrickmacross Rural District Council four applications for the position of engineer to the labourers' cottages scheme were received and considered as follows:—Mr. Peter Cahill, Dundalk, 10s. per plot for sites marked and 2½ per cent. on outlay; Mr. W. Wilson, Carrickmacross, 7s. 6d. per plot and £1 10s. per cent.; Mr. C. M. Tuite, Dundalk, 7s. 6d. per plot and 1½ per cent.; Mr. J. Heeney Silverbridge, who did not forward his terms, but Mr. Kelly said he would do the work at his original quotation. Mr. Tuite received 12 votes, Mr. Wilson 4, and Mr. Heeney 2. Mr. Tuite was declared elected.

Dublin.—The Great Northern Railway Co. are open to receive tenders up to 10 a.m., 10th August, for a seven-ton travelling crane in accordance with drawings and specifications, which can be seen at secretary's office, Amiens Street, Dublin.

The Hibernian Electrical Co. has just fitted out a complete electrical installation for Messrs. P. Breen and Co.'s motor garage. The work was carried out under the supervision of Mr. R. Jephson, A.M.I.E.E., resident engineer.

Naas.—Tenders are invited for constructing an out-fall drain, septic tank, and bacterial filters at the Kennels, Jigginstown, near Naas, for the Kildare Hunt Club. The plans and specifications are by Mr. Francis Bergin, B.E., 36 Westmoreland Street, Dublin.

Tipperary.—The Joint Committee of Management of the Clonmel District Lunatic Asylum are open to receive tenders for the following work in connection with the electric lighting of the asylum:—Section 1—Suction gas plants, gas engines, electric generators. Section 2—Accumulators, Switch-board, underground mains, wiring and fittings. Section 3—Power-house buildings and foundations. Mr. Louis J. Lawless, A.I.E.E., 27 Castlewood Avenue, Rathmines, Dublin, is the consulting engineer. Tenders will be received up to 7th September.

ANSWERS TO CORRESPONDENTS.

Church, North of Ireland.

MESSRS. W. & S.—We cannot give you the information asked, but are making enquiries, and will let you know result.

Very keen competition was a feature of the tenders for the building of the Dublin Corporation Library in Great Brunswick Street. A large number of tenders, which we publish elsewhere, were received, and the prices must have been cut very fine, so close together are the estimates. The tender of Mr. George Langley was lowest, but no definite decision on the part of the Corporation has as yet been announced.

CORRESPONDENCE.

The Castletownbere Church Competition.*

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—In your issue of July 13th there is a letter from Mr. Webb, Hon. Secretary, Royal Institute of Architects, Ireland, on conduct of architectural competitions.

It would be just as necessary for members of the Institute to act in a professional manner, and not to go through the country soliciting and trying to grab orders.

The Castletownbere Church Competition is a case in point. I was, I might say, almost in possession when some members of the Institute, with others, sent offering to submit designs for the work free of charge if not accepted. A competition was arranged. The selected design was to be set aside if it cost more than £7,000. Here is a copy of letter arranging terms by the Parish Priest:—

“Presbytery,

“Castletownbere,

“16th June, 1906.

“DEAR MR. HYNES,—Having received five designs for my church, I propose to take an expert opinion as to the best to be selected. When a selection is made I shall advertise for a contractor.

“You will remember that my arrangement with you was, that if your design were selected, and if I obtained a solvent contractor to execute the work at a cost which will not exceed £7,000 for the shell of church, then you would be appointed architect at a fee of five per cent. on the amount of the contract; but that otherwise you shall have no claim upon me. Will you please write me a letter saying you agree to these terms.—Yours faithfully,

“J. P. McDONNELL.

“To Messrs. Ashlin, Coleman and Ashlin, Butler

“and Donnelly, Hennessy, Hynes and

“O’Connell, Architects.”

My design was reported by assessor artistic, and the only one that could be built for the money. Yet in your last issue I see when tenders were procured for work the lowest estimate, £11,000!! is accepted, and faith broken with me, who ought to have got the work.

The above is a most flagrant want of right dealing in architectural practice.—Yours truly,

SAMUEL F. HYNES,
Architect.

21 South Mall, Cork, July 20th, 1907.

*We held over the above letter from our last issue for the purpose of submitting it to the architects whose design has been selected in competition. They inform us that the facts are not as stated by Mr. Hynes.—ED. I.B. & E.

A large orphanage, the bequest of Miss McCudden, is to be built at Bundoran, Co. Donegal. Mr. T. F. MacNamara is the architect, and Mr. D. W. Morris the surveyor.

In our last issue we published a resolution passed by the Council of the Royal Institute of Architects, in reference to the Cork Sanatorium Competition. At the moment of going to Press we have received a full report of the meeting of the Cork Hospital Board, at which the resolution of the Institute was read, together with a communication from Mr. A. E. Murray, Dublin, resigning the position of assessor, to which he had been appointed; also a communication from Mr. J. F. McMullan, Cork, declining to compete. The proceedings are so important to architects and to the public, that we shall publish them in full in our next issue. The whole incident shows what can be done by architects standing together loyally, and reflects great credit on Mr. Murray, Mr. McMullan, and the other Cork architects who refused to have anything to say to the competition. The Board were very angry, of course, and possibly may get their hospital equally well built by someone less thin-skinned, but the proceedings will have a wholesome effect, and tend to raise the status of the profession in Ireland. Of course, this has not been gained without sacrifice on the part of the architects named, for which they are entitled to the warmest thanks of all their professional brethren, whose battle no less than their own they have been fighting. A few more such incidents and the general public would hold architects in higher esteem.

NAPOLEON THE GREAT AND STEAM TRACTION.

Few persons are aware of the personal interest taken by the great Napoleon in the possibilities of steam, with particular reference to Fulton's first model of a steam-driven boat. Read this letter of his:—

“Monsieur de Champagny,—I have just seen the project of the engineer Fulton which you sent me much too late, considering that it is of the greatest importance and may easily change the face of the world. However this may be, I desire you to submit the affair to a commission composed of members of the Institute. A great fact—a palpable, physical fact, is before my eyes. I leave it to these gentlemen to find and grasp. As soon as their report is ready have it sent to you and then submitted to me. Don't let them take more than eight days over it, for I am impatient.

“In my camp at Boulogne, July 21, 1804.

(Signed),

“NAPOLEON.”

And what happened? The commission, formed by his Excellency the Minister of the Interior, M. de Champagny, in a voluminous report, declared that steam certainly could raise the lid of a kettle, but that the idea of using it to drive a ship was pure folly, an absurdity, which could only emanate from the brain of a sick man. With reference to steam-driven vehicles, in a report dated the “4 pulviôse of the year VIII” (January 14, 1800), the Commissary-General of Artillery, Rolland, wrote: “On the return of General Bonaparte, I spoke to him of this steam-car of Cugnot's, and he delegated the citizen Perrier, of the Institute, to examine and report on it, but having had to leave for Egypt, the trial ordered by General Bonaparte could not take place.” It is interesting to note that Napoleon, when he was First Consul, allowed the engineer Cugnot a pension of 1,000 francs a year for his scientific researches.

The above merely tends to show that Napoleon—contrary to what historians and others have asserted—took the greatest interest in steam traction, and would, no doubt, have had a steam-propelled motor-car at the beginning of the last century had he not been called away so frequently to the wars of the time.

CONTRACTS.

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The Waterworks Committee hereby invite proposals from persons willing to purchase the following, viz. :—

(1). Two direct-driven Steam Pumps, single cylinder, 18 in. diameter, pump barrel 10 in. diameter, stroke 24 in., and fitted with rubber suction and delivery valves, air vessel, and suction pipes 11 feet long, with foot valve and strainer.

One of the Pumps requires slight repair, otherwise they are in good working order.

These Pumps were in use at the Waterworks Pumping Station, Lee Road, and were worked at 30 revolutions per minute, with a steam pressure of 60 lbs. per square inch against a head of 180 feet.

(2). Steam Boiler, Loco Type; working pressure, 60 lbs. per square inch, with all mountings, including injector and feed tank.

Fire Grate surface about 14 square feet, and fitted with steel tubes 2½ in. diameter x 7 ft. 9 in.—52 in number.

Shell, 4 ft. diameter. Length over all, 13 ft. 3 in.

Boiler is in good working order, and Insurance Inspector's Report (27/11/06) is available for examination.

About 140 feet of 4-in. bore Steam Piping, in good condition, will be sold with Boiler.

The Plant can be inspected on application to the Resident Engineer, Waterworks Pumping Station, Lee Road, Cork.

Sealed proposals, addressed to the undersigned, and endorsed “Purchase of Steam Pumps and Boiler,” will be received at the Secretary's Office, City Hall, Cork, up to 12 o'clock noon on Tuesday, 20th August, inst.

By Order,

D. F. GILTINAN,

Secretary of Committees, &c.

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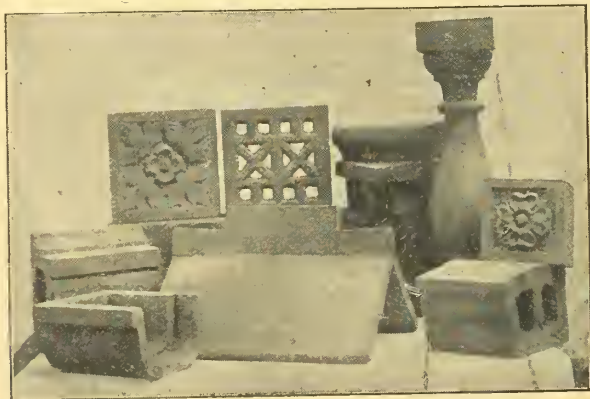
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No. 17—Vol. XLIX.

HEAD OFFICE

August 24, 1907.

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TOPICAL TOUCHES.

Mr. C. H. Ashworth, architect, has removed his offices from 41 Dame Street to 12 William Street, Dublin.

* * * * *

The foundation stone of the new church at Castle-town-Berehaven was laid with fitting ceremony on Thursday last by the Most Rev. Dr. Mangan, Bishop of Kerry.

* * * * *

A new Catholic Memorial Hall and Schools are to be built at Castlerea, Co. Roscommon, from the designs of Messrs. W. H. Byrne and Son, architects, Dublin. Mr. D. W. Morris, Dublin, is the surveyor.

* * * * *

The Commission appointed by the Lord Lieutenant to inquire into a memorial in reference to John's Bridge at Kilkenny has reported in favour of its removal, and it is estimated that a new bridge will cost £5,300.

* * * * *

The Commissioners were Mr. George P. Sheridan, A.R.I.B.A., architect, Dublin, and the County Surveyors of Waterford and Kilkenny respectively.

* * * * *

The work of completing Pugin's fine Cathedral at Killarney, the tower of which has never been finished, will, it is believed, be begun in about twelve months' time. Funds are being collected, and it is expected that the total outlay will be from £15,000 to £20,000. Messrs. Ashlin and Coleman are the architects.

* * * * *

Messrs. Clarke and Son, North Frederick Street, had a nice exhibit of stained glass at the "Oircahtas" Exhibition held in the Rotunda during the week before last. Messrs. Earley and Co., Camden Street, also exhibited portions of a new marble altar they are doing for Clifden Church, the execution and finish of which does them much credit.

* * * * *

On Sunday last was dedicated the new church at Spiddal, Co. Galway, the Most Rev. Dr. MacCormack being the officiating prelate. It is claimed that this church represents an epoch in Irish ecclesiastical design, by the revival of Irish Romanesque architecture. The high and side altars and all the marble work of the church were carried out by the Galway Granite Co. Mr. W. A. Scott is the architect.

* * * * *

Between 1899 and the present year, at least £150,000 has been spent by Government in erecting defences on Bere Island in Bantry Bay. The work chiefly comprises earthwork defences and batteries, concrete being largely employed in the construction of the batteries. The expenditure of so large a sum has, of course, been very beneficial to local trade, the numbers of men employed being so considerable.

* * * * *

On Monday last H.R.H. the Duke of Connaught inaugurated the Memorial to the Royal Dublin Fusiliers, which has been erected in Stephen's Green, Dublin, at the Grafton Street corner of the Park. The memorial, which takes the form of a Roman triumphal arch, is constructed of chiselled granite. It is inscribed with the various actions in South Africa in which the R.D.F. took part, and has been designed by Mr. J. H. Pentland, R.I.A., of the Office of Public Works, Messrs. Laverty and Sons, of Belfast, being the contractors.

The work of building the new Dublin Corporation Technical Schools in Bolton Street, Dublin, has not yet been put out for competition—a matter which has occasioned some surprise.

* * * * *

It was ordered, at the last meeting of the Dublin Corporation, that the city seal be affixed to the contracts in connection with the clearance of the site for the proposed new Technical Institute in Bolton Street.

* * * * *

In the United States and on the Continent concrete steel is now being used for telegraph posts and for poles for overhead electric posts. Great success has, it is stated, attended the experiment.

* * * * *

On last Saturday the English architectural excursion wound up at Norwich a delightful week in Norfolk. A number of the splendid east-country churches were visited, with their glorious open timbered roofs, as well as some fine old houses, such as Blickling Hall, East Barsham Manor House, Melton Constable Hall, etc.

* * * * *

The serious strike of carters and others, which lasted so long and had such deplorable consequences, terminated happily on Friday last, the men resuming work as the result of the negotiations which had been proceeding for some days previously. Many of the Belfast builders and contractors were seriously impeded in their work by difficulties in getting carting done.

* * * * *

During the past few years the number of palatial structures of one kind or another erected in London has been astonishing. It would seem to indicate that, in spite of what is said, trade must be fairly good, when insurance companies and other great mercantile concerns can afford to put up the buildings we hear of almost every other day. For instance, recently we read that the Chancellor of the Exchequer declared open the new offices of "The United Kingdom Provident Institution"—in the Strand, nearly opposite Kingsway. We read that the new offices, constructed externally entirely of Portland stone, are enriched by fine sculpture, with groups of Virtue, Prosperity, Temperance, Providence, Truth, Justice, Security, and Industry—the figures are all chiselled by well-known sculptors. We are told that most of the ground floor is occupied by the great circular office, lined entirely by marble and mosaic. It is divided by eight monolithic pilasters of green cipolini marble, while the frieze, of purest white marble, is five feet deep, with ormolu bronze figures on the white marble background.

* * * * *

The staircase is all of marble, and lighted by stained glass windows, by a noted artist. Upstairs the rooms open off a hall entirely lined with marble, and with a vaulted ceiling in gold. The boardroom and other apartments are all wainscotted in elaborately-panelled and carved oak. The doors are of the finest Spanish mahogany, with specially-selected figured panels. The boardroom ceiling is filled with a fine allegorical picture by Professor Moira.

* * * * *

Mr. Henry T. Hare was the architect of this palatial structure, and certainly description does not convey the idea of poverty and commercial bankruptcy.

THE RESTORATION OF YORK MINSTER.

As is generally known for a considerable time past, the Dean and Chapter of York Minster have been engaged on the work of restoring the Cathedral, which in parts had fallen into considerable disrepair.

During the earlier stages of the restoration, the restoration, or rather reconstruction of the flying buttresses was the subject of somewhat bitter controversy. The Dean of York has lately published an account of the expenditure on the restoration, and incidentally gives a very readable account of the works now being carried out.

The Dean in his survey of the work, refers to the completion of the west front after eight years of labour and thought, and says:—

There is little doubt as to what will be the verdict of all intelligent and unbiassed persons, for the marvellous and intricate details of the structure are once again seen in almost all their original beauty, the grand façade which Yorkshiremen, and indeed all men of taste and culture have valued for so many generations, is once again presented for their pleasure and gratification, and the labours of devoted and skilful men, for the glory of the House of God, are seen free from the decay of time, and the ignorant and careless treatment of those who either knew not, or depreciated, the intrinsic merits of what they handled. It has been asserted that, under the plea of restoration, many details of antiquity and taste have been destroyed, and genuine old work removed for the sake of replacing it by new. But those who allege this must be unaware that, some hundred years ago, a well-intentioned but mistaken attempt at restoration was carried out so effectually, that little of the old work really remained unblemished, through the lack of real knowledge in what had been handled. The appreciation of true Gothic work was then only in its infancy, and the national taste was then only beginning to wake up from a long period during which Gothic architecture was not appreciated, but rather regarded as an effete style of building, and unsuited to the climate and requirements of Englishmen. To the former we owe the ruthless destruction of many beautiful Gothic buildings, and of much exquisite mediæval detail. To the latter we can trace the feeble efforts made to restore or reproduce forms or ornamentation, of which the spirit had scarcely been revived, and the real knowledge of which was to many a sealed book.

The west front of the Minster is a not inapt illustration of this; the veriest tyro in Gothic architecture can see that much which exists in the details thereof is so manifestly devoid of the spirit and tone of mediæval work as to be but a poor reproduction of what existed before, while additions have been made which, in form and style, are in discord with the school which they are supposed to represent. Great care has, however, been taken in the present restoration of the building to preserve, as far as possible, everything evidently original, and where insecurely bedded, to replace it in a more permanent way. Whatever, from partial decay, could not be retained with safety to the public has been carefully removed and placed in the grounds behind the Deanery, where, on application to the Chapter Clerk, those interesting survivals can always be seen by architectural or archaeological students.

Some discussion has also been raised as to the expediency of restoring the flying buttresses. It was alleged that either they never had existed or that they had been taken down because they were not required. As regards the former, the exhibition of "Ancient York," held some two years ago, presented engravings which showed that they were actually in existence as late as the close of the seventeenth century, while sufficient fragments have been found, built into other portions of the building or neighbouring walls, which conclusively confirmed these illustrations. As regards the latter, viz.:—that they had been removed when the original idea of a groined roof for the nave had been abandoned, as never being required for a wooden roof, this has been disproved, first by the existence of flying buttresses in many buildings where only wooden roofs exist, throughout England, and especially in the Chapter House of the Minster, where they are still *in loco*, and which has never had any other than the wooden roof, which exists at the present day. Secondly, the careful examination of the walls of the nave aisles by Mr. Bodley has shown that, by the pressure of the wooden roof, they are seriously out of the perpendicular, and that the original builders, realising their great height and the thrust which any roof would have upon them, wisely provided this additional security at the beginning. The flying buttresses were evidently taken down at a period when there was a general indifference to Gothic buildings, and the materials used up for the sake of economy, or for such purposes as required atten-

tion either in the Minster or in the property of the Dean and Chapter. But, fortunately, in so doing, sufficient portions have been preserved to enable the complete and faithful restoration of the whole, not only for the sake of their architectural beauty, but for the stability of the building. And it will be a source of satisfaction to all who contributed to the Restoration Fund to feel that they have assisted in the revival of these graceful and essential adjuncts to the Minster.

The last restoration of the west front was completed rather less than one hundred years ago, so the disintegration of the stonework has been rapid, and as ancient buildings of the same stone (viz.: Tadcaster) in this neighbourhood are still as fresh as the day when they were completed, this disintegration is due from some cause peculiar to York, and doubtless that is the action of the sulphurous smoke upon magnesian limestone. We have taken care to carry out the restoration with Ketton stone, which, being an Oolite, will, we hope, prove invulnerable to this influence, but as the number of smoke-emitting chimneys throughout York has increased, it is evident that unless some measures are adopted to mitigate the smoke, the disintegration will be even more rapid in the future.

And this is no mere ecclesiastical question, but one which affects commercial and sanitary interests. We have read lately in the *Times* newspaper of the manifold danger of ignoring or neglecting this important subject. It is often said, we have been reminded, "Where there is smoke there is money," but science and practical experience teach a diametrically opposite creed, viz.:—"Where there is smoke there is waste of money;" and Mr. Edward Atkinson, President of the Mutual Boiler Insurance Company, Boston, U.S.A., says: "Smoky chimneys give evidence of waste of fuel, because the existence of smoke is evidence of bad methods of firing, and of incomplete combustion," which in London alone has been estimated at nearly two millions sterling, per annum; while Messrs. Crossfield and Co., of Warrington, have stated that they save £2,500 per annum on their coal bill alone by reason of the steps which they have taken to secure perfect combustion; and Messrs. Newnes, of Cardiff, have estimated their savings from similar means at twenty-five per cent.

But it is not only wasteful, it is detrimental. The Houses of Parliament in London, being built of Dolomite limestone, are seriously affected thereby. And not only this, but Faraday, before a Royal Commission, testified to the injury done to the pictures in the National Gallery. While Sir William Richmond states that the frescoes in the House of Commons, the priceless marbles in the British Museum, the public monuments in Trafalgar Square and on the Embankment, and the very bricks and mortar of the houses are being disintegrated and dissolved by the all-pervading and destructive smoke. While the serious action of the acid upon the ironwork in the roof of Charing Cross Station undoubtedly caused the late terrible accident.

Sir Frederick Treves further states, that the health of men and animals is injuriously affected by the fogs caused thereby, filling the lungs with small smoky or sooty particles, which are hydrocarbons, with an excess of sulphuric and sulphurous acids to add to their ill effects. In 1880 the death-rate in London rose to forty-eight per thousand. And Sir Oliver Lodge firmly but justly denounces the amount of wasteful incombustion. Indeed, another writer says that the iniquity of depleting the air we breathe must be increasingly inculcated as a foul habit, just as offensive to the general welfare as contamination of drinking water by sewage, while the distinction between the respective evils of black, grey, blue, or yellow smoke seems to be exaggerated.

The prevalence, therefore, of smoke not only affects the Minster, which to some, who have no taste for Gothic architecture, or no sympathy with the purpose thereof, may seem immaterial, but it affects the health of the city, and it is useless to take measures for good drainage and pure water if we neglect this. It will be well, therefore, if, for time to come, the condition of the fabric is regarded, not only for ecclesiastical or archaeological reasons, but as a token to the citizens generally of what is really the prevailing condition of the atmosphere which they are compelled to breathe and in which they have to live.

At the present moment (continues the Dean) our funds for further progress in the work of restoration are nearly exhausted, and though the interest on the munificent legacies which we have lately received will eventually enable us to continue to do something, it will not be sufficient to enable us to make any very rapid progress, and we trust, therefore, that it may be supplemented with continued contributions. The Duke of Westminster's seasonable donation of £200 enables us to carry out the much-needed restoration of "The Five Sisters" window where the strong iron stanchions, contracting and expanding under the

changes of temperature in the atmosphere, have broken the thick plates of glass put up years ago for its protection, and materially cracked and injured the stonework. These will be carefully repaired, and an outer covering of plain white glass in quarries, with lead glazing substituted for the present thick green plates, but we are waiting for summer weather and still, calm days, as the ancient painted glass has become so thin that if exposed to a strong wind it might be seriously damaged.

The great east window must not be forgotten. The condition of the glass there is very similar to that of "The Five Sisters," and the repair of the stonework and the substitution of white quarried glass for the green plates should not be delayed longer than we can help.

The windows in the clerestory throughout the nave, and indeed throughout the whole building, both as regards the stonework and the glass, should be attended to as soon as possible, not only for the preservation of these matchless specimens of mediæval glass, but also for the safety of persons walking or worshipping beneath.

The parapet of the central tower also claims our attention, as it is in a very insecure condition, and many of the stones require to be replaced or made fast. Indeed, the whole tower requires treatment, the walls re-pointing, and many of the gargoyles which have fallen off to be restored.

And, finally, the beautiful mortuary chapel or canopied tomb of Archbishop Bowett should not be left any longer in its present dilapidated state. The elaborate canopy was much injured by a fall of timber during the fire of 1829, and it has been entirely neglected since then. The memorial of so great and good a man deserves to be differently treated. To him we are, in a great measure, indebted for the grand central tower, and his courage in leading the army to repel the invasion of the Scotch, although so ill as to require to be carried on a litter, entitles him to our grateful and abiding remembrance.

CORK JOINT HOSPITAL BOARD.

Action of the Institute of Architects.

A special meeting of the Committee of the County of Cork Joint Hospital Board was held. The Secretary read the following letter:—

37 Dawson Street, Dublin,
July 23rd, 1907.

DEAR SIR,—At a meeting of Council of the Royal Institute of the Architects of Ireland held to-day, the following resolution was passed:—

"The Council desire to place on record its opinion that when the conditions governing any architectural competition have been brought before the Council, and it has felt compelled, in the interest of its members and the public good, to condemn such conditions as inequitable, and has notified the members of such condemnation, any action of a member of the Institute in acting as assessor, competing, or in any way countenancing the conditions of competition, which the Council has already condemned, is hostile to the interests of the profession."

You will, of course, see that I, as a member of the Institute, cannot act as assessor as arranged; I am giving the earliest intimation possible, that you may bring the matter before your Board, and return papers you kindly sent me, viz., conditions, advertisement, and maps.—Yours faithfully,

ALBERT E. MURRAY.

E. J. Murphy, Esq., Secretary, County Cork Joint Hospital Board, Courthouse, Cork.

Alderman O'Riordan—What is inequitable in the conditions?

Mr. Longfield—They say they are against the public good. We thought we were doing something for the public good.

Alderman O'Riordan—That is what I am at a loss to understand. It is a most extraordinary epistle to come from a learned body of men. If they were a body of poor men their action would be termed a strike. It is too bad that at this stage of the work we should be blocked and retarded. We had the choice between an Irishman and an Englishman, and we chose the Irishman because he would understand what would be most suitable for a sanatorium. Let us select the plan we think best, and have no dealings with them at all beyond condemning their action in the strongest manner.

Mr. Leader—It is a regular boycott.

Mr. Longfield—What have we done wrong?

Mr. Murphy (secretary) said he had letters from the Architects' Society, who considered the person who sent in the successful plan should carry out the work, and that £350 should be given for the plans instead of £100.

Mr. Longfield—It seems to me like a sort of ultra trades' union job.

Mr. Brazier Creagh—We applied for plans to embrace engineering and architectural work together. I think it is more an objection to that than anything else. He would ask was Mr. Evans a member of the Architects' Society.

Mr. Evans, C.E., said he was a member of the Engineers' Society but not of the Architects.

Mr. Longfield—Do you know what we have done wrong? Mr. Evans—They wish the successful competitor to carry out the plans altogether.

Alderman O'Riordan—I think this action has come from an ultra Irish section of the community in Dublin. I suppose these are some of the labour-of-love gentlemen, who are high philanthropists, until it comes to business. I propose that we ask the Local Government to give us plans.

The Chairman—They refused to do that before.

Alderman O'Riordan—I consider it is most outrageous for this body to act in this way.

Mr. Leader said he understood they had received two plans. Had they been looked at by Mr. Evans?

Mr. Evans said he had glanced over them and did not care for either.

The Secretary said Mr. James F. M'Mullen had written as follows:—I beg to acknowledge yours of the 18th inst., which I return, as I am not submitting plans for the competition, as originally intended.

Alderman O'Riordan—There is a regular combine. That gentleman is also a member of the National Society for the Prevention of Consumption.

The Chairman—After all, he is connected with the Architects' Society.

Mr. Longfield—You cannot compel any man to give us plans.

The Chairman—I think it is hard on Mr. M'Mullen if he has made out plans and cannot submit them.

Mr. Leader said the Local Government Board had given designs for labourers' cottages, and he thought they should give them a plan for a sanatorium.

Mr. Brazier Creagh said the Local Government Board's prize cottage would not cover a respectable pig it was such a gimcrack affair.

Alderman O'Connor also thought that the Local Government Board should come to their aid.

On the proposition of Mr. O'Connor, seconded by Mr. Brazier Creagh, Mr. Evans, Engineer to the Board, was directed to prepare plans, and on the motion of Alderman O'Riordan, seconded by Alderman O'Connor, a sum of £20 was voted to Mr. Evans to defray his expenses to England, so that he could visit sanatoria there.

Alderman O'Riordan said they should not break up without condemning the action of the architects and their want of public spirit in refusing their assistance to the Board.

The Chairman—Leave them alone, Alderman. Treat them with silent contempt.

Alderman O'Riordan—Why let them alone. They deserve severe public censure.

Mr. Creagh said it was a trade union question, which frequently arose at the Corporation, as Alderman O'Riordan knew. He did not think they should take action.

No action was taken in regard to the matter, and the Committee soon afterwards adjourned.

QUEENSLAND FOREST FIGURES.

In these days of timber scarcity it is refreshing to consider that at our antipodes there lies a wealth of forest country waiting the advent of the railway to make it available for the needs of the Old World by means of export. Take Queensland, for instance, where there are 60,000 square miles of wooded land, considerably more than a third of the whole timbered area of Australia. One out of every thirteen persons in that Colony gets his living from the timber industry. The timber required for building purposes within the Colony is locally produced, and a third of the quantity cut is exported to the other parts of Australia. This fact may convince people here of the ability of Queensland to supply marketable woods.

Some approximate figures of the industry in 1906 from the Director of Forests are as follows:—Soft wood cut, 47,071,780 ft.; cedar, 897,296 ft.; hard wood, 25,951,203 ft. The value of this timber is put at £388,000. One of the most important uses to which Queensland pine is put is the manufacture of butter-boxes for the Australian exporter. As the total export of boxes to this country alone last year was 1,800,000, the magnitude of this section of the trade is realised. The local cost of production in the timber trade has advanced of late considerably.

NEW CHURCH, SPIDDAL.

On Sunday last the Irish-Romanesque church at Spiddal, West Galway, was consecrated by the Most Rev. Dr. MacCormack, Lord Bishop of Galway. Father Conroy, the Parish Priest, has taken his designs from and found the material and the workmen to build his church in Ireland. The Irish-Romanesque style of architecture, particularly as regards our country, has long been in desuetude.

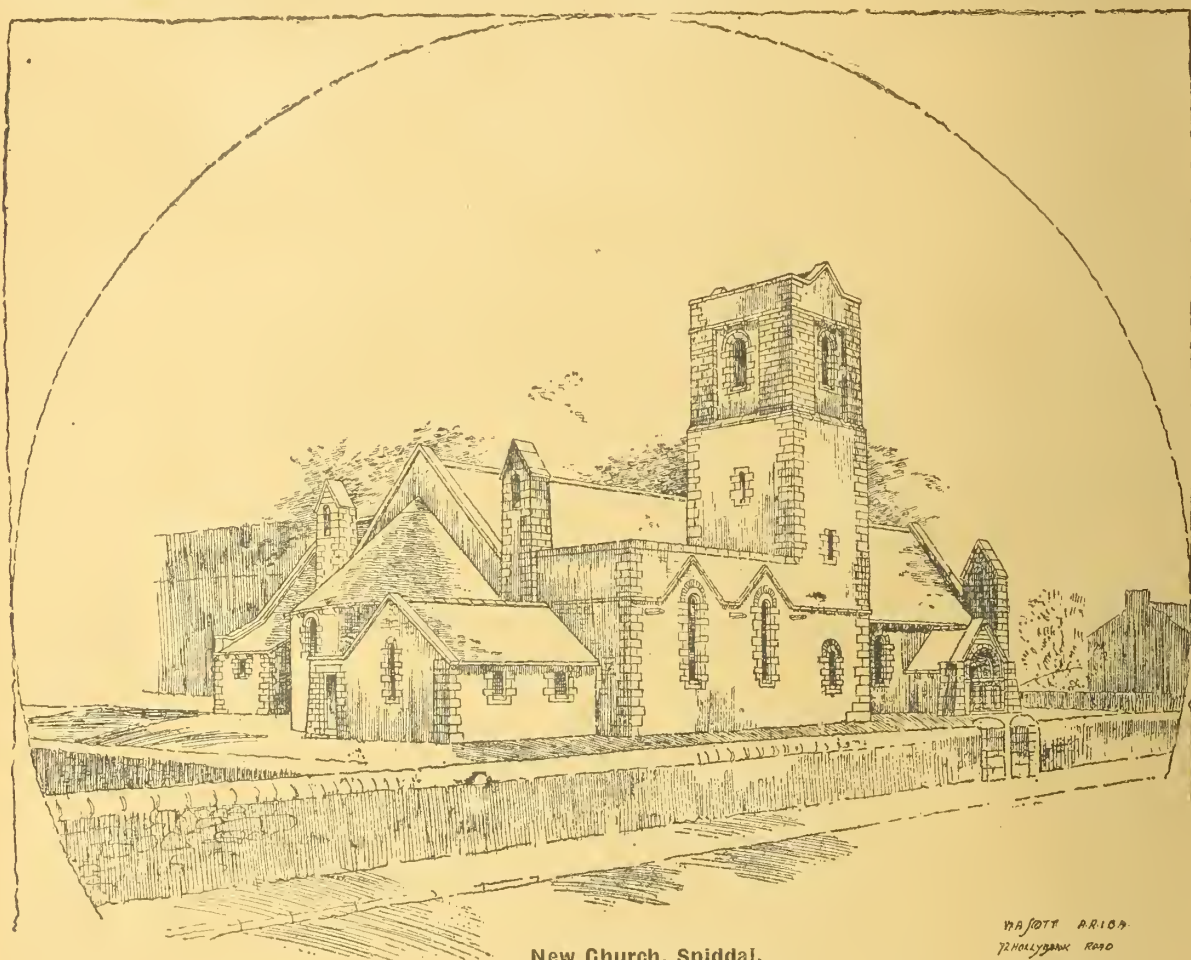
Father Conroy calls his church "the first effort at a revival of the native architecture developed by the Gael before the coming of the Gall." It is more. It is the beginning of a new school of Irish architecture, for in the development of the ideas of our ancestors, new ideas sprung forward and became embodied in the construction of Spiddal church.

Spiddal is probably the most Irish-speaking and the most Irish in sentiment district in the four provinces. Need one add, it is not a too wealthy district; but its people are generous, and its pastor a man of boundless initiative, energy, and determination. Thoroughly Irish, he looked to the Ireland of six or seven hundred years back for the design for the new church, and with a success that has

ently commodious to hold his people. A church worthy of God and of holy Ireland. He has succeeded wonderfully, and it only remains for Irishmen to learn that his noble shoulders cease to carry a burden of debt, made by circumstances imperatively necessary.

The following is the translation of the Irish inscription on the foundation stone laid in 1904:—

Age of Christ, 1904; second year of the reign of Pope Pius X.; 9th day of October.—The Most Reverend Doctor Francis MacCormack, Bishop of Galway, who founded this Church of Edna to the glory of God and the honour of Eire. On this day, he blessed and set this foundation stone. Father Marcus Conroy, Parish Priest of Spiddal, in Iar-Connacht, who caused this church to be built for the flock. Thomas Griffin and Son, of Galway, are the builders. The Irish-Romanesque design of this church is by the architect, William Scott, of Dublin; the outline and structure are after the model of the architecture of Eire in the days of saints and ollamhs before the coming of the Gall. Two hundred feet from the tower of this church are the ruins of the ancient Church of Edna, on the high-water mark of the sea, together with the ruins of his oispideal, from which the district and parish of Spiddal are named.



New Church, Spiddal.

W. A. SCOTT A.R.C.D.
72 HOLLYBANK ROAD
DUBLIN 7 1907

given intense delight to lovers of the beautiful in art. Spiddal new church may be humble, as are its people, but there is many a huge cathedral that would appear but of little architectural consequence if placed beside it. Here is what the Most Rev. Dr. Healy, Archbishop of Tuam, says of Irish-Romanesque:—

"Irish-Romanesque took its rise in its ornamental forms about the beginning of the 11th century . . . and reached its perfection during the first half of the 12th century . . . a purely national development of the foreign Romanesque of Italy and Southern France. . . . 'In this development,' as an eminent professional authority (Brash) has said, 'the Irish exhibited wonderful fertility of invention, taste, and fancy in design, the utmost accuracy in drawing and harmony in colouring.' . . . And bear in mind this wonderful development was the outcome of native genius. All these great and beautiful works were accomplished through the munificence of our native princes, under the inspiration of Irish talent, and by the hands of Irish workmen."

Father Conroy's aspirations were worthy of the man and the priest—to build, instead of the little church building, a sketch of which we give, a church worthy of and suffi-

LATH RENDING.

The rending or splitting of laths for building purposes was at one time a lucrative employment in many parts of England, but particularly Beds and Herts. The best class of Scotch pine, but particularly that of clean, straight growth, was used for the purpose, and from the Bedfordshire woods many loads of timber were supplied, the average price being about 10d. per cube foot. Of late years, however, the industry has gradually been a declining one, and not one-tenth of the bundles of laths that were at one time forwarded to the various building centres are now required, altered conditions in the building trade and foreign importations having slowly but surely ousted the hand-made lath of the past from our markets. It was an interesting sight to see the renders manipulate the laths from the logs of wood. First the tree was cut into the lengths of the required laths, then deftly these were rent into smaller sizes, and finally the finished lath ready for the market was swiftly turned out. The refuse usually found a ready market for firewood, or, rather, for fire-lighting purposes, and the laths, after being bundled and tied, were, if not required locally, sent hither and thither wherever a demand was required of these at one time important requisites of the plasterer.—*Master Builders' Journal*.

BERHAVEN NEW CHURCH.

The Most Rev. Dr. Mangan, Bishop of Kerry, laid the foundation stone of the new church at Berehaven on Thursday last, in the presence of a large number of clergy and laity.

At the High Mass, the sermon was preached by the Rev. Father Lavery, of St. Louis, U.S.A. A procession was afterwards formed to the site of the new church, and the foundation stone having been well and truly laid, his Lordship, addressing the concourse of people, referred in eulogistic terms to the Right Rev. Monsignor Carmody, to whose initiation the prospect of building the new church was due; and to his successor in the parish, Canon M'Donnell, who, in the course of a few years, had succeeded in collecting a large sum towards the building fund. At the conclusion of his address, his Lordship imparted the Papal Benediction. His Lordship was presented by the architects with a solid silver trowel, the manufacture of Mr. John Kane, ecclesiastical silversmith, Middle Abbey Street, Dublin, with which his Lordship laid the stone.

The new church will be from the design of Messrs. Doolin, Butler and Donnelly, architects, Dublin. The stone, both inside and outside throughout, is to be of the well-known Castlewella granite, from Messrs. McCartan's famous quarries, and all the material to be used will be as far as possible of Irish manufacture. Mr. Robert Kelly, Bantry, is the contractor. Numerous charitable donors have promised stained-glass windows, and the High Altar, which it is estimated will cost about £1,000, will be erected at the expense of a donor who desires to remain anonymous.

The contract entered into for the building work, etc., amounts to close on £11,000.

It having been decided to build a new church at Castletown-Berehaven, the want of which has been much felt for many years past, two years ago designs for a new church were invited from six architects practising in Dublin and Cork.

The designs were submitted to a professional assessor, who awarded first place to the design of Messrs. Doolin, Butler and Donnelly, of Dublin, which was thereupon selected, and the authors appointed architects. Subsequently tenders were invited from a number of builders throughout Ireland, Mr. Kelly being the successful contractor, and he has since made considerable progress with the preparatory stages of the work.

The importance of Berehaven, once a great centre of the copper mining industry, has of late been largely increased by the selection of Berehaven as the headquarters of the Atlantic Fleet. In addition, Berehaven is in itself the centre of a poor and wild, but very extensive and picturesque district, with many historic memories. Berehaven is, of course, the old stronghold of O'Sullivan Beare, and the locus in which is laid the scene of Froude's "Two Chiefs of Dunboy."

The style of the church is of a form of pointed architecture, which was largely developed and adopted in Ireland during the thirteenth and subsequent centuries, to so considerable an extent that it may be deemed a native style, and as such is well exemplified in the many fine abbeys and churches dating from that period, and remains of which still exist throughout Ireland.

It is a style severe, but with many marked characteristics of its own, and capable of very dignified treatment by simple means, such as bold and broad masses, tall and graceful windows, and great, deeply-recessed doorways. For these reasons, as well as for its native character, it is peculiarly suited to the hard building stones of Ireland, which render elaborate or fine ornamental details extremely costly.

The present design does not, however, cling too slavishly to precedent, but makes an attempt at some degree of originality.

The west front has as its chief feature a large and deeply-moulded doorway, with a prominent range of traceried niches over it, and is lighted by a large traceried rose window, deeply recessed within a pointed arch heavily moulded. The original competitive design provided for a great three-light lancet window, but this has now been altered.

Bell turrets flank either side of the west front.

The tower is not placed in the usual position on the west front, but abutting on the Nuns' Choir, and on the south aisle of nave. It is designed in such form as to be more or less independent of the church, which will be complete in itself without the tower and spire, no funds being likely to be available for the completion of a tower and spire on a scale and style adequate to such a church as this for several years to come. When completed, the tower will rise to a height of 180 feet, and will form a notable landmark from Bantry Bay.

The foundation stone of the church, which was laid by the Lord Bishop of Ardferd and Aghadoe, with full

ceremonial, was specially prepared by Messrs. McCartan of finely dressed grey granite. Beneath the stone, in a suitable receptacle, were placed the usual relics, current newspapers, an inscription in Latin on parchment, and currency of the realm.

**OUR SOUTHERN LETTER.**

(FROM OUR CORRESPONDENT.)

Cork Junction Railways.

It has now been announced in connection with this project that the Treasury have agreed to contribute £25,000, as the conditions which they made have been complied with, namely:—That the Irish Government should first be satisfied that the best arrangements had been made respecting the site of the Cork Bridge, and that the undertaking generally was, in their judgment, in all respects conducive to the interests of the South of Ireland. And also that the Treasury must be assured of the thorough financial stability of the promoters of the scheme, and of their capacity to carry out their undertaking effectually.

The Great Western Railway Company of England have taken over the financial responsibility, assisted by the above Treasury Grant, and contributions from the Cork, Bandon, and South Coast Railway and the Cork Harbour Commissioners.

They have also agreed to prepare the plans, etc., and to be responsible for the carrying out of the scheme.

It is now suggested that the Great Western Railway Company should get the Government to continue the railway at Baltimore down to the deep water quay, which is constructed there about 400 yards from the railway.

Waterworks, etc.

The Dungarvan Urban Council held a special meeting at which they decided that Mr. Bergin, C.E., be requested to visit Dungarvan in connection with the proposed water supply for the town.

About twelve months ago application was made to the Local Government Board for a loan of £5,000 for the purpose of constructing a supplemental water supply.

An inquiry was held, and the inspector considered the scheme too expensive. The Council then limited the expenditure to £3,000, but as the required scheme could not be executed for this amount the scheme fell through.

The reason the Local Government Board suggested that a cheaper scheme should be prepared was because borrowing powers would also be required for a sewerage scheme.

The Kinsale Rural District Council have received a report from their engineer, Mr. R. Evans, C.E., who states that he considers that the proposed water supply for Crosshaven would cost the sum of £15,500. It was decided to communicate with the military authorities at Fort Camden in order to discover what amount they would be prepared to contribute towards the scheme for the purpose of obtaining the water supply for Camden and Templebredy Forts.

Mr. Evans also reported that in connection with the water supply for Ballinspittle, he would be unable to complete the proposed scheme until the drains from the springs at source are opened up.

Cork Sanatorium Competition.

Owing to the conditions of this competition, Mr. Albert E. Murray, A.R.H.A., refused to act as professional assessor, and, as far as can now be known, the matter seems to be left in the hands of Mr. R. Evans, C.E., to decide which of the four sets of plans submitted he considers entitled to the prize. Then the Committee will have to decide what they will do with the plans.

Bantry Pier.

The Cork, Bandon, and South Coast Railway Company have applied to the Board of Trade for permission to widen and extend the existing Railway Pier at Bantry.

The southern side of the existing opening portion of the pier will be widened by twenty feet. The seaward end of the pier will be fifty feet in width, and it is proposed to extend the pier for a distance of forty feet.

**ANSWERS TO CORRESPONDENTS.****Hot Water Geysers.**

R. D. (Dublin).—The best geyser we know of is Ewart's "patent lightning geyser," manufactured by Messrs. Ewart and Co., Euston Road, London. It is a strongly made copper geyser, worked by gas, and on the principle of a steam coil. It is an excellent substitute for a domestic hot water system, over which, indeed, it has some advantages, and a hot bath can be procured in a few minutes at any hour of day or night. In fixing the geyser, special provision for ventilation is necessary, and it is desirable, if possible, to have a one-inch gas supply pipe to the geyser.

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CONTENTS.

PAGE.

Topical Touches	577
The Restoration of York Minster	578
Cork Hospital Board	581
New Church at Spiddal	582
Berehaven New Church	585
Our Southern Letter	585
LEADING ARTICLE:	
"The Oireachtas"	586
COMMENTS:	
Design in Labourers' Cottages	589
Obituary	590
Law Cases	591
Clontarf Drainage	591
Building News	593
Imports	594
Engineering Items	597
Books Received	598
Institute of Sanitary Engineers	601
The Steel Trade	606
Engineering News	606

"THE OIREACHTAS."

The week before last there was held in Dublin what is known in Gaelic as "Oireachtas," a series of performances, competitions, and exhibits of industrial and artistic productions. This annual event has recurred for several years under the auspices of the Gaelic League, and has already attained proportions of considerable importance, as well as utility. It is not to-day or yesterday that we have spoken of the deplorable want of any organized scheme for the regeneration of Irish arts and manufactures, and of the terribly low state into which Ireland as a nation had sunk in matters of art.

The industrial requirements and desires of Ireland had for many generations been exploited for the benefit of other nations. The condition of art, a state of things to be ashamed of, and to be hidden away from the gaze of the astonished Englishman or foreigner. During the years of the great church building revival in Ireland, which may be taken roughly as the second half of the nineteenth century, a not inconsiderable sum was annually expended in building and furnishing churches, while a good deal of domestic and public work was done during the same period; with rare exceptions, most of this work attained to but a very poor standard. English terra-cotta, stone, imported joinery, foreign marbles, deplorably bad stained glass, carved oak, metal work, and almost every single manufactured article used in buildings, locks, grates, mantels, and so forth, were all imported, and usually in the worst of taste.

It would be impossible, as well as out of place, for us to speculate upon the causes of this state of things, or to assign blame to particular individuals or classes. Suffice it that these conditions existed. Violent attacks have been made, for instance, upon Irish architects, upon the clergy; but the truth appears to be simply this, that in a generally decadent state of things they simply failed to rise higher than the general level.

There can be no question that during the past few years the Gaelic League has done much to rouse people to attempt better things. The other arts and crafts in Ireland

had sunk equally low, but it would be beyond our scope to attempt to discourse thereon—but it is a matter of common knowledge that the Theatre in Ireland had ceased to exist. Dramatic art simply took its cue from London, and the chief fare set before Irish audiences was provided by second-rate English Musical Comedy Companies. The publication of books had nearly ceased a few years ago. To-day there is an Irish Theatre, equal to the best that England can produce, or has produced in latter years, while the publication of books has revived to an extraordinary extent, and quite a school of Irish literature is being developed. Material industries have progressed too, though not so markedly. In fact, there is a general and promising, if not startling, revival all round—art alone lags greatly behind. The mother Art of Architecture shows no great signs of improvement, the annual Exhibitions of the Royal Hibernian Academy, conducted under the most depressing and stifling conditions, year by year have failed to get away from mediocrity, and have been chiefly remarkable for the exhibition of a number of works of no particular merit or interest, and which might be just as well the product of any land under the sun, for all the native character the exhibitions as a whole have had.

The present Exhibition affords some hopeful signs. It is entirely native, and there seem to be not wanting signs, that there are existent the germs of a great industrial and art revival, with possibilities of great results under favourable conditions.

It is very unfortunate that it should have been necessary to separate the two sections and place them in different buildings half a mile apart. The industrial section, comprising such things as furniture, carpets, stained glass, textiles generally, is placed in the Rotunda, while the "Arts and Crafts" exhibition has been located in the rooms of the Royal Hibernian Academy, in Abbey Street. Indeed, some of the exhibits in the one section are of very similar character and purpose to those in the other, and the reason for their separation is not easy to see; for instance, cast bronze panels for an altar rail are to be found in Abbey Street, while marble panels for an altar are placed in the Rotunda; however, we suppose such things are inseparable from early effort.

The exhibition in the Rotunda is not very extensive, but is hopeful. There are here shown (in addition to many articles which do not come directly within our purview), some excellent examples of furniture and textiles. Messrs. Pim's exhibit of goods made entirely in their own Dublin workshops, was highly creditable; also some reproductions of antique models, by Messrs. Nolan. Some Irish-made carpets of beautiful texture and colouring were shown, and their manufacture deserves to be encouraged by all who can afford to buy an Irish carpet; unfortunately, Irish-made carpets are still very expensive, though doubtless worth the money for their fine colouring and lasting qualities. We would suggest that there is an excellent opening for a carpet manufactory which would produce goods suited to the average middle-class purse. The person of moderate means has at present to content himself with an imported carpet usually of very tawdry, vulgar colouring, and by no means durable in wear. At the same time we must not be taken as advocating anything in the nature of "shoddy," which has happily not yet polluted the Irish revival—that would be a fundamental error, for the strongest claim to favour for Irish goods must be, above all other things, quality. May we also suggest that great care in design should be insisted upon in regard to furniture. Let the design be as simple as you like, but good—and this, even should it be necessary for a time to have recourse to English designers. Irish manufacturers should aim at two features—good design and lasting qualities.

At the Hibernian Academy the Arts and Crafts Exhibition was in full swing, and we were very glad to notice a fair attendance of the public, though nothing like what it ought to have been. The most prominent object in the Exhibition was the Parnell Monument, a statue in bronze of Charles Stewart Parnell, by the late Augustus St. Gaudens. The statue is undoubtedly a good likeness of Parnell in some respects, but somehow it does not convey that latent fire that all who have heard Parnell speak, will well remember, and there is a stiffness of pose, particularly in the

arms, that is not altogether pleasing, but on the whole, it must be pronounced a fine work of art. It is a sad coincidence that almost simultaneously with the arrival of the statue in Dublin, came the news of the distinguished sculptor's death. Augustus St. Gaudens was a native of Dublin, long resident in New York, and of world-wide repute. There is a singular appropriateness that his last effort should be for the adornment of his native city, and in commemoration of a great Irishman.

The Exhibition generally is made up mainly of paintings and a small array of handicrafts or applied arts. Miss Sarah Purser shows some very fine cartoons for stained glass, and we are glad to note the Irish revival has almost stopped importations of the hideous so-called "art" of Munich and Belgium, for which Ireland was so long a dumping ground. Some of Miss Purser's recent works may here be mentioned:—Windows for St. Patrick's Cathedral, Dublin; Moyliscar Church, Westmeath; Rochestown Monastery, Co. Cork; Kilskeery Church, Co. Fermanagh; Ardahan, Co. Galway; Stained and Ornamental Glass, also Mosaic for Spiddal, Co. Galway, etc., etc. Including windows executed, and in hands, for St. Stephen's, Mount Street, Dublin; Alberta, N. W. Canada; four for Loughrea Cathedral, Co. Galway; Tulla, Co. Clare; Ballater, Scotland, to the order of their Excellencies Lord and Lady Aberdeen; Ballaghaderreen, Co. Mayo; Sutton, Surrey, England; Crawley, Sussex, England; Kilkenny; Lissadel, Sligo; Spiddal, Galway; Macasquin, Coleraine; Bruree, Co. Limerick; Lorra, King's Co.; Irvinestown.

The window ordered by their Excellencies is on view, and is a remarkably good piece of colouring and drawing. The recent awakening to the knowledge of good and bad stained glass in Ireland is altogether remarkable.

The pictures are a very mixed lot, but the impression produced by a casual walk round is one of astonishment at the originality and excellence of some of the better and more clever works shown. It is too early in the day, we suppose, for the committee of selection to be very critical in their hanging, but when the Irish movement becomes a little stronger, as we have no doubt but it will, critical care should be taken to exclude the entirely commonplace (of which, by the way, there is a fair representation in the present exhibition). There is a very nice "Study" (No. 4), by Miss Purser. A portrait by Mary Swanzy, a very fine picture by the late Mrs. C. J. McCarthy (18), and several others by the same talented lady. The small but remarkably fine collection of pictures belonging to the Irish Franciscans are lent—chief amongst them is the portrait of "Luke Wadding," by Carlo Marat (1625-1713). "The Cardinal York" and "Clementina Stuart," wife of the old Pretender. These are full of interest, but of course are not Irish. Several of Mr. J. B. Yeats' portraits are hung—"George Russell, Esq." and "George Moore, Esq.—the latter a particularly happy work. Another good portrait is by Margaret Saunders, and without a title, as are many of the works shown. A whole series of Mr. J. M. Kavanagh's characteristic and ever interesting pictures are on view, and a number by the lamented Walter Osborne.

As we have said, several of the pictures are very mediocre, and some of the portraits most insipid. The portrait of Sir Anthony Weldon, D.S.O., is weak, and not a good likeness. Of even weaker type is No. 71, a portrait of a young man in Yeomanry uniform. Very different indeed is No. 70, portrait by Miss Purser. Alfred Grey, Henry Allen, Nathaniel Hone, and several of our best known Dublin painters are creditably represented.

A beautiful picture is "Dublin at Daybreak," by J. Poole Addey. Mr. Poole Addey's water-colours are always charming, and full of life and colour.

Two very nice exhibits lent by Mr. Stephen Gwynn, M.P., are: "The Shipyards, Belfast," and "Dublin from Clontarf," both by Hugh Thomson.

We confess we are not greatly enamoured of Mr. Jack B. Yeats' Sketches of Irish Life, especially his method of colouring, but they are undeniably very clever—quite a number are exhibited. We like his soft pencil sketches, notably the "Contemporary Club" sketches far better—there is much less mannerism. There are many other pictures and sketches of merit, but space prevents mention of them in detail.

Black and White work is represented by several drawings, showing a good deal of originality and skill in execution.

A very beautiful mezzo tint (plate and proof) is "Moonlight," by Francis Walker, R.H.A.

The collection of Sculpture is small, but good so far as it goes. Amongst it there are included four brass and four bronze panels for the Altar Rails of Loughrea Cathedral, by Michael Shortal, who also shows a photographic reproduction of a good design for a Chalice. Mr. Oliver Sheppard, R.H.A., and Miss Rosamund Praeger both show some admirable work.

The cartoons for stained glass from Miss Purser's Studio, by Miss Beatrice Elvery, Miss Ethel Rhind, Michael Healy, and A. E. Child, respectively, are all praiseworthy, and prove a great advance in Stained Glass Design as understood in Ireland.

Some old Irish miniatures, modern enamels, leather work, and rugs woven by the Dun Emer Guild, complete the sections.

To those having the interests of Art in Ireland at heart, the Exhibition must be not alone hopeful, but helpful. Unfortunately, in connection with the revival, there is noticeable in some quarters a deplorable tendency towards eccentricity and crudeness, which, if allowed to dominate the revival, will inevitably kill it. The "cult of crudeness" has in Austria, Germany, and to some extent in England, done much mischief by exciting ridicule. The canons and basis of Art are immutable, and it is about as hopeful to talk of a "New Art" as of a new climate. Art—true art—is ever fresh, and has in all ages achieved its own development naturally, and not by revolution. It is to be hoped that the more ardent spirits of the Irish revival may not seek to run before they can walk; the result of any such tendency could not but be harmful.

COMMENTS.

Design in Labourers' Cottages.

Speaking on Mr. P. C. Cowan's excellent paper on the housing of the Irish rural labourer, read before the Royal Sanitary Institute at its Congress held in Dublin last month, and reported in our columns at the time, some very interesting observations were made by Mr. M. J. Tighe, Surveyor, Board of Works Department, Galway.

Mr. Tighe, in the course of his observations, said that in going round the Exhibition the previous day he was struck rather unfavourably with the cottages he saw there, and such cottages on the western seaboard would be absolutely impossible. They had four doors and two windows and a fire-place in one room, and for six months of the year such a sitting-room would be entirely uninhabitable. It struck him as being somewhat like a stage-room in a theatre where, for the purposes of the comedy, plenty of doors and windows were needed for the players to go in and out. He thought it unfortunate that in selecting the designs a committee of architects had not been consulted. In the administration of these Labourers' Cottages Acts the necessity of architectural assistance had been completely neglected. He understood that the architect in one place was a small publican with a taste for carpentering, and he employed his spare time in preparing plans for the cottages, which were badly planned and badly built. He trusted that the ventilation of this matter would cause wiser counsels to prevail. Now that the Local Government Board were sending out plans for these cottages it was possible for men who could not draw a single line to make a few alterations, and these men were calling themselves architects, with the diploma of the British Government.

Mr. Tighe's words coincide with what we have been saying ever since this last Labourers' Bill was introduced. The conditions under which architectural design and supervision were obtained were bad under the old Acts; the necessity for improvement was patent to all who had examined the question, and, through the instrumentality of the Society of Architects, was brought home to Mr. Bryce, the then Chief Secretary. Mr. Bryce's intervention, so well meant, capably done, and favourably received by the whole House of Commons, and actually embodied in the Statute Book of the realm in unmistakable terms, has, through methods of adminis-

tration, become an absolute dead-letter, and the last state of the question is worse than the first.

The ratepayers suffer, the tenants suffer, and the Government endows with a diploma all sorts and conditions of men.

The new Act has certainly caused a greater number of cottages to be initiated, but it has neither simplified the procedure nor brought about any improvement in the class and style of house built; it has distinctly attained a contrary result.

As regards the policy of building cottages, calmly considered, there can be no two opinions. Lately much discussion has been raised on the subject of the ravages caused by consumption in Ireland, and the means available for combatting that terrible disease, which, we are told, on the very best authority, is an absolutely preventable complaint. Sanatoria are everywhere talked of, but it is more than doubtful if these institutions really accomplish lasting good. In the first place, the demand for accommodation is so largely in excess of the supply that it is impossible to keep the patients under treatment for a sufficient length of time, and many patients are discharged not half-cured, only to return to their unhealthy homes, where the disease is not long in recovering the ground lost while the patient was in the sanatorium. In the next place, admission is not limited to persons in the preliminary stages, with the result that there is considerable waste of treatment. Obviously, the best insurance against consumption would be healthy, cleanly homes for the poorer classes. Many of the patients come from rural districts, and there can be no doubt that a considerable proportion, if not the majority, owe their infection to the insanitary conditions under which they live, and which render them easy subjects of attack. The effects of overcrowding and bad sanitary conditions are now well known, and some very remarkable figures with reference to the various classes of school children in Glasgow have just been published by Dr. W. Leslie Mackenzie and Captain A. Foster. They measured and weighed no less than 70,000 of the pupils of the various schools of the city. They found that boys from one-roomed homes weigh on an average 52.6 lbs.; from two-roomed homes, 56 lbs.; from three-roomed homes, 60.6 lbs.; and from four-roomed homes, 64.3 lbs. This remarkable increase in weight as the home becomes less congested does not, of course, depend altogether on the question of space, for, presumably, the man who has a four-roomed house is better to do, and can give his children better food and better clothing than the man who can only pay for one apartment; but the figures are a very pertinent contribution to one of the greatest of social questions, and extremely timely, in view of the sitting of the International Congress on Housing.



CONCRETE-STEEL BRIDGE CAISSONS IN DONEGAL.

A new use for reinforced concrete is illustrated by the caissons employed in building the piers for a railway bridge over the River Foyle, in Donegal. The caissons measured 31 ft. 3 in. long by 8 ft. wide, the ends being brought to a point. The sides were vertical and made to the uniform thickness of 6 in., being reinforced by vertical bars of $\frac{5}{8}$ -in. diameter, spaced 15 in. apart, and by horizontal bars of the same size spaced 6 in. apart. The caissons were moulded on shore in sections 2 ft. high, the first section of each being provided with a cutting edge. After the latter had been lowered into place, the upper sections were added in due succession and guided to their correct bearings by vertical bars projecting upwards from the bottom section. The horizontal joints were made with tongues and grooves, and completed with Portland cement mortar forming water-tight caissons or coffer dams projecting above the surface of the water. Inside these the piers were built up and continued to the required height. It is particularly interesting to observe that the engineer responsible for this new application of concrete-steel to railway engineering was Mr. James Barton, of Dundalk, who for fifty-four years has been a member of the Institution of Civil Engineers, and is to-day an active member of the Council of that body.—*The Builder*.

OBITUARY.

Death of Mr. Benjamin Patterson.

We regret to announce the death of Mr. Benjamin T. Patterson, the *doyen*, and practically the originator, of the quantity surveyors' profession in Ireland. Mr. Patterson's death took place at his Co. Wicklow residence, Dunran, on the 17th inst., and he was buried on Tuesday last at Mount Jerome. He had attained the age of seventy, and was in active strength until recently.

Mr. Patterson began life in the office of Deane and Woodward, the architects, Sir Thomas Deane, the grandfather of the present Mr. T. M. Deane, being the then senior partner in the firm. They had an immense amount of work in hands at the time, and Mr. Patterson gained his first practical knowledge of building matters at the Kildare Street Club, which Deane and Woodward were then building, the late J. J. O'Callaghan being also in their office at the same time. Later, the firm carried out the Engineering School in Trinity College, which earned for Woodward the enthusiastic praise of Ruskin, who paid a special visit to the works while in progress. Mr. Patterson studied in the Engineering School of Trinity College, and became a graduate of the University of Dublin. Starting as a quantity surveyor, he soon established a lucrative and extensive practice, and, in partnership with Mr. John Kempster, it may be said the firm acted as quantity surveyors in connection with all the most important buildings of that time. For the Government Departments they did an immensity of work. For many years they were practically without professional competitors, and all the Government buildings, asylums, etc., erected during that long and busy period passed through their hands. Even in more recent years, when many competitors sprang up, Mr. Patterson still remained the leader of his profession up to the time of his death.

Mr. Patterson had a perfect, and almost unrivalled, acquaintance with the art of taking out quantities. His bills were distinguished by admirable lucidity and conciseness of expression, no less than by extreme accuracy; his powers of conveying himself simply and clearly enabled builders to price his bills with ease and rapidity. The older generation of contractors looked upon "Patterson's quantities" with the most implicit trust, while his bills served as models to his competitors. Amongst the larger works for which he was surveyor may be mentioned, the Science and Art Museum, Dublin; the Portrane Asylum, and a host of lesser works, public, private, and ecclesiastical. He was likewise employed in many arbitrations. He was held in high regard as an expert witness, and up to a few years ago no important building case was complete without his presence as a witness on one side or the other.

Mr. James Brennan, R.H.A.

We much regret to record the death of Mr. James Brennan, R.H.A., at his residence, Leinster Road, Dublin. Formerly Head Master of the Metropolitan School of Art, Dublin, a post he had held for many years, being appointed about twenty-three years ago in succession to the late Mr. Lyne, and holding until recently. Mr. Brennan was an energetic, capable, and sympathetic Art master, one who took a deep interest in his numerous students, and of an unvaryingly kind and courteous disposition. Prior to his appointment to the Dublin School of Art, Mr. Brennan was for many years Head Master at the Cork School of Art.

Mr. Brennan was a Royal Hibernian Academician, and an occasional contributor to the annual exhibitions.



OUR ILLUSTRATIONS.

Wells Cathedral—Sugar's Chapel.—(From the Architectural Association Sketch Book.)



In the recent election of a member of Parliament for North Staffordshire, the defeated tariff-reform candidate, who was cheered by his successful opponent, was Mr. Twyford, of Cliff Vale Potteries, the well-known manufacturer of fire-clay goods, whose manufactures are so well known in this country.

LAW CASES.

Contractor v. Employer.—Policeman as Architect.

At the Tyrone Assizes, before Lord Justice Fitzgibbon, Charles Gormley, farmer, Omagh, was plaintiff in an action against Terence Quinn for £50 for work done to defendant's house. The case was adjourned by the County Court Judge, and plaintiff was ordered to complete the work to the satisfaction of an architect appointed by his Honor. There was a counter-claim by defendant.

Mr. P. Law Smith, K.C. (instructed by Mr. A. E. Donnelly, solicitor), appeared for the plaintiff, and Mr. Denis Henry, K.C. (instructed by Mr. F. J. O'Connor, solicitor), for the defendant.

Plaintiff said he was a contractor, and built a house for the defendant at a cost of £100. When the house was completed defendant ordered some alterations, which witness executed at a cost of £50. Defendant refused to pay. The alterations referred to were placing in two extra fire-grates, changing a hall door and staircase, and refixing the ceilings.

Mr. Henry—Wasn't Mr. Moran, C.E., to inspect the house? Yes.

Doesn't the concrete on the floor rise up when you go to sweep it? No.

Is there any cement in it at all? Yes.

Mr. Elliott, C.E., Derry, said he visited the house, but owing to defendant refusing to give the key witness did not get an opportunity of inspecting the inside. In his opinion, the hall door was rather elaborate for a house of the kind. It was well furnished, and had a circular "fan-light" on top, and side lights. The charges were reasonable.

Mr. Henry—I suppose you can't tell what the inside was like when you did not get in? I only saw the kitchen floor through the window, and it was apparently all right.

Did you remark any of the window sills being cracked? I only saw one cracked, and the crack was small.

Mr. Henry said the defence was that the house in the first instance was not built according to the specification, and the changes that were made were part of the contract. In the specification there were four firegrates to be put in, and plaintiff only put in three. Here Mr. Henry handed the specification to his Lordship, who handed it to the plaintiff, asking, "Did you sign that?" "I'm not sure I did," was the plaintiff's reply.

His Lordship—Do you not know your own handwriting? There was not so many stamps as that on it. (Laughter).

His Lordship—For goodness' sake, leave the stamps out of your head and tell me is that your signature?

After a long time gazing at the document witness said he did sign it, but he still maintained that there were no stamps on it.

His Lordship—You admit you signed it, and your name is written over the top of one of the stamps, which shows clearly that the stamps were on it.

Defendant, in his evidence, said plaintiff made no alterations except what was included in the bargain.

"What is the house like?" queried Mr. Henry. "You couldn't live in it ten minutes if you were short of breath," replied the witness, amidst laughter.

In reply to further questions, witness said the concrete on the kitchen floor was nothing but loose sand. His son, who was a policeman in Donegal, drew out the specification.

Mr. Smith—I suppose you hadn't a solicitor? No.

You didn't need one when you had a son in the police force. (Laughter).

Charles Quinn, defendant's son, said he saw plaintiff sign the agreement.

Mr. J. Moran, C.E., Omagh, said it was impossible to sweep the floor without sweeping off the concrete.

Mr. Henry—Is there any cement on it whatever? It is more like lime. (Laughter).

Concluding, witness said six of the window sills were cracked, and the glass of one of the windows was broken.

His Lordship gave a decree for £14 5s., and on the counter-claim by the defendant for £14 for breach of contract he gave a decree for £4.—*Ulster Herald*.

Scaffolding Fatality.—Important Case for Builders.

Last week Mr. Coroner Murphy resumed the inquest, at Cork, on the body of John Francis Pierce, aged fourteen years, who died in the South Infirmary as a result of injuries received on the previous evening by falling from a scaffolding on the South Mall.

Mr. J. F. O'Riordan, solicitor, appeared for the next-of-kin; Mr. A. Clarke, solicitor, for Mr. Gaul (the deceased's employer), and Mr. J. J. McCabe, solicitor, for the insurance company.

Mr. W. J. Neely, H.M. Inspector of Factories, was also present.

Thomas M'Namara, a labourer in the employment of Mr. Gaul, stated that on the day of the accident he was attending a plasterer with the deceased, who had nothing to do but wait on the plasterer, to whom he was serving his time. Witness left the scaffolding, and when he got down to the lower landing he heard a crash on the roof. He went back, but found no one on the scaffolding. He called to deceased, but got no answer; he then came down and found the young lad on the ground.

To the Coroner—None of the scaffolding gave way. It was the usual kind of scaffolding used in jobs of that kind.

To Mr. O'Riordan—There was not a guard round the scaffolding.

John Caverly, plasterer, stated he was in the employment of Mr. Gaul, and on the day of the accident he was cementing a chimney on the South Mall. The deceased was with him for about four weeks, and was learning his trade. The scaffolding used was of the usual kind. There was no railing round the scaffold, as it was hardly ever done in jobs of that kind, and such work was often done by ladders. He left the roof, and the deceased remained behind. He did not see the accident.

To M. O'Riordan—There was nothing wrong with the scaffolding. He warned the lad before he had come down. It was possible to put up a guard, but it was hardly ever done.

Mr. Neely stated he examined the scaffolding that morning. There was no absolute rule regarding scaffolding at present, but there were certain recommendations and special rules being drawn up, and were under consideration by his Board. These rules had been printed and issued to builders. The scaffolding used was of the usual kind. There were such things as guard rails, but he had never seen them on roofs. There was no obligation to use these guard rails at present.

Mr. O'Riordan addressed the jury, and asked them to say that the accident was the result of Caverly leaving the roof.

Mr. Clarke said that he, on behalf of Mr. Gaul, deeply deplored the very sad accident, and sympathised very much with the relatives of the deceased. Mr. Gaul was very fond of the lad, who was very careful, hard-working, and honest.

The Coroner said they all joined in the expression of sympathy. It was a very sad case. However, their duty was to ascertain the cause of death. Then they had to deal with the question of the scaffolding, but the evidence they had heard showed that the scaffolding was of the usual character, and nothing was wrong with it. He did not think that any criminal charge could be laid at the door of any person.

The jury returned a verdict that deceased died from shock, consequent on the injuries sustained by having fallen from the scaffolding. They recommended that in future on such work guards be placed round the scaffolding. They attached no blame to anybody, and considered Mr. Gaul was in no way responsible for the accident.

CLONTARF DRAINAGE.**Appointment of Resident Engineer.**

The report of the Improvements Committee of the Corporation with regard to the appointment of the Resident Engineer to take charge of the construction of the works has just been issued. It contains a lengthy correspondence between Mr. G. Chatterton and Mr. Spencer Harty. Mr. Chatterton writes in the first instance to the Secretary of the Committee to the effect that he was to have "a free hand" in the construction of the work, and that accordingly he considers he should have a voice in the appointment of the Resident Engineer. To this Mr. Harty replies that the agreement seemed to stipulate that "the free hand" was to be only in connection with the designing of the scheme. Mr. Chatterton, in reply, says that, of course, the Committee must have the appointment of the Resident Engineer, but what he was anxious about was that a thoroughly competent man, with previous experience in similar work, should be appointed. Mr. Harty, in a further letter, gives an extract from the agreement, which stated that "engineer" should mean himself (Mr. Harty) "or the other engineer for the time being duly authorised by him or by the Corporation to act as engineer in the construction of the said works."

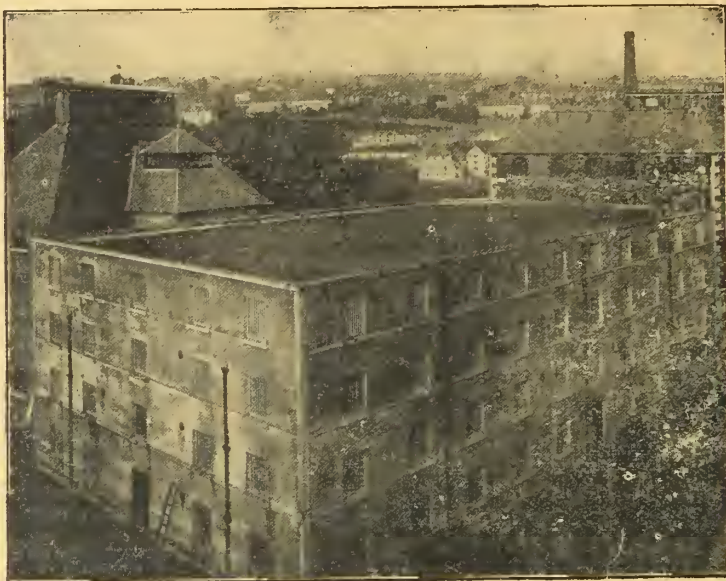
The Committee ultimately made the following order:—
"Approved of Mr. Harty's recommendation of 23rd April, 1907, that Mr. Buckley be Resident Engineer, and be responsible for the constructional work; and Mr. A. Burke to be employed as assistant—to devote his whole time to the works, both to be responsible to the City Engineer."

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ENQUIRIES AND ORDERS RECEIVE PROMPT AND
PERSONAL ATTENTION.



Aghalee.—The Board of Guardians of Lurgan Union have received tenders for carrying out certain repairs and alterations at Aghalee dispensary and medical officer's residence.

Blackrock.—Mr. James Allen, Blackrock, is building a garden house at Chesterfield for Mr. Howard Guinness, according to designs and specifications of Mr. L. A. McDonnell, M.R.I.A.I., 9 Hume Street, Dublin. The walls are of 6-inch breeze concrete, covered with rustic timber, with a rough-faced granite plinth built to a batter. The roof is covered with Burmese teak shingle on ruberoid roofing.

Tenders have been invited for additions to the Meath Schools, Blackrock, according to the plans and specifications of Mr. G. F. Beckett, 97 Stephen's Green, S., Dublin.

Bray.—Mr. Andrew Carnegie has undertaken to grant the Bray Urban Council £2,000 to erect a free library, provided that a site be procured, and a penny rate be struck annually. The Council accepted the offer of a free site for a library opposite the Bray Technical Schools.

Bantry.—Tenders are invited by the Parish Priest, Bantry, for the reconstruction of two curates' houses. Copies of the plans, specifications, and conditions may be seen at the Presbytery, Bantry, and at the office of the architect, Mr. Hennessy, 74 South Mall, Cork.

Bailleborough.—At the meeting of the District Council here, applications were received from Mr. Wilson, Carrickmacross; Mr. Patrick Brady, Drumshoe; Mr. Chas. Tuite, Dundalk; and Mr. Patrick O'Reilly, Buise, Virginia, Co. Cavan, for the position of Architect or Engineer in connection with the local scheme under the Labourers Cottages Acts. The terms in Mr. O'Reilly's tender—the lowest—were £1 2s. 6d. for architectural work and 6s. for marking each site. Mr. O'Reilly was elected.

Belfast.—A letter was received from Mr. J. T. Hine, of London, consulting architect, making certain criticisms on the preliminary sketch plans for the hospital block at the Purdysburn Asylum, and it was agreed that Dr. Graham should send forward a suitable reply dealing with the various questions that had been asked.

St. Clement's Church.—New day schools of a most up-to-date and commodious character have been erected. The day schools will accommodate almost 450. The building, which is at the corner of Paxton Street, fronting Castlereagh Street, has been constructed with Laganvale selected perforated brick, with Ballycullen stone dressings. It is two storeys in height, and has a floor space of 53 feet by 36 feet 2 inches in the clear. By means of folding partitions, each floor can be divided into four classrooms, 24 feet by 18 feet, with corridor running the entire width of the building. These partitions, which are of pitch pine work, are on ball-bearing fittings, and are so constructed as to fold up to the wall, thus leaving the whole floor space clear for social and other gatherings. A fire-place is provided in each classroom, and ventilation has been carefully attended to, while there is a spacious playground at the rear. Mr. Hutcheson Keith, Glenravel Street, was the building contractor. The architects were Messrs. C. W. Ashe and Sons, Waring Street. The gas-fittings were installed by Mr. T. Hill, Albertbridge Road, while the plumbing and sanitary work was done by Mr. Job Cherry. The new schools have cost £1,800.

Claremorris.—Tenders are invited for the erection of additions to St. Michael's Convent Schools, Claremorris. Messrs. Doolin, Butler, and Donnelly are the architects.

Castlereagh.—Tenders are required for building a Memorial Hall and Schools at Castlereagh, Co. Roscommon. Quantities have been prepared by Mr. D. W. Morris, surveyor, 68 Harcourt Street, Dublin, and can be obtained on application. The tenders are to be lodged with the Very Rev. Canon Harte, P.P., Castlereagh, on or before the 27th inst. Messrs. William H. Byrne and Son, 20 Suffolk Street, Dublin, are the architects.

Cavan.—Tenders are invited for the erection of a new bank house at Cavan for the Hibernian Bank, Ltd., according to plans and specification to be seen at the office of Edward J. Toye, architect, 20 Great James Street, Londonderry. Bills of quantities can be had on appli-

cation to the architect or to the bank manager at Cavan, for which a deposit of one guinea will be required, to be returned on receipt of tender. Tenders to be addressed to the Secretary, Hibernian Bank, College Green, Dublin, and delivered on 29th inst.

Cootehill.—At the meeting of the Cootehill Board of Guardians, Mr. Thos. L. O'Brien, C.E., Stradone, wrote enclosing plans and specifications, etc., for the medical officer's residence in the Tullyvin district. The estimated cost was £697 1s. It was decided to forward the plans, etc., in connection with both the dispensary residences at Tullyvin and Rockcorry to the Local Government Board for their approval.

Dalkey.—Mr. James Allen, contractor, Blackrock, is making alterations and additions to Seaview Cottage, Dalkey, for Mr. Walter Conan, according to designs by Mr. L. A. McDonnell, Hume Street.

Dunlavin.—Tenders have been received for alterations to premises at Dunlavin for the Munster and Leinster Bank. Mr. L. A. McDonnell, Hume Street, is the architect.

Dublin.—The Dublin Corporation is prepared to receive tenders for the repainting of the Court House, Green Street. Tenders close on September 2nd.

A new Isolation Hospital is to be built at Vergemont, Clonskeagh, for the Rathmines and Pembroke Joint Hospital Board, according to the designs and specification of Mr. Edwin Bradby, M.R.I.A.I., College Park Chambers, Dublin. Messrs. Beckett and Medcalf, 10 Leinster Street, are the quantity surveyors.

Mr. Benjamin Millard, contractor, Pleasants Street, Dublin, is at present building at 27 South King Street new motor works for Mr. Robinson.

Messrs. Sheppard are at present constructing a new seal pond at the Zoological Gardens.

Mr. James Allen, contractor, Blackrock, is at present rebuilding No. 14 Thomas Street, Dublin.

We observe that the exterior of the Municipal Offices at Cork Hill is being renovated. The work is being carried out by the employees of the Corporation.

Messrs. Johnston, Mooney and O'Brien are adding a new tea-room and increased lavatory accommodation to their premises, 7-8 Leinster Street, Dublin. Messrs. H. and J. Martin, Grand Canal Street, are carrying out the work from the designs of Mr. Frank E. Sparrow, 9 Hume Street. The walls are to be panelled with art canvas panelling, enamelled white. The lighting will be obtained from three dome roof lights. Messrs. Robinson and Brunner are responsible for the electric installation.

Messrs. H. and J. Martin have just completed the second of two large laboratories for Trinity College, according to the designs and specifications of Mr. W. Cecil Marshall, M.A., F.R.I.B.A. The heating apparatus has been supplied by Messrs. Musgrave and Co., Belfast. The handsome wrought-iron ballustrade to the concrete staircase is the work of Messrs. G. and J. McGloughlin, Great Brunswick Street, Dublin. Ballynockin granite is the material used, and a considerable amount of stone carving has been carried out, making a very handsome frontage. The fabric has been lined with Mount Argus brick, and the roof is of Westmoreland green slab and heavy lead. The building has been provided with electric light and lift, and when fully equipped for scientific research will be on an equality with any similar building in the Kingdom.

Mr. Sparrow, architect, 9 Hume Street, is also preparing plans for three houses, proposed to be built in Camden Row for Mr. O'Brien, 81 Camden Street.

Messrs. H. and J. Martin are rebuilding No. 2 Chatham Street for Messrs. Lawson and Powell. Mr. L. A. McDonnell, Hume Street, is the architect.

Dundalk.—Tenders have been received for the erection and completion of a new school for boys, and a new cut-stone entrance to the Convent National Schools, for the Sisters of Mercy, Dundalk. Mr. John F. McGahon, Roden Place, Dundalk, is the architect.

Derry.—Tenders were received for building additions to residence at Cumber Claudy, Co. Derry, for Mr. Edward Moss, according to plans and specification of Mr. J. P. McGrath, architect, Commercial Buildings, Foyle Street, Londonderry.

Tenders will be received up to Wednesday, the 25th September, for building boot factory and warehouse, also shops and dwelling-houses, at Castle Gate Corner and Waterloo Street, Derry, for Henry McKeown, Esq., T.C., according to plans and specifications of Mr. Patrick H. Elliott, architect, Exchange Buildings, Castle Street, Derry.

Kingstown.—Mr. Delaney, contractor, Kingstown, is at present building two houses in Sussex Street, for Mr. Carpenter.

Kilrush.—Alderman D. Gallery, of Montreal, is in negotiation with Signor Marconi with a view to having a wireless telegraph station constructed at Kilrush, Co. Clare.

Monaghan.—Tenders for the erection of a new Crown Post Office at Monaghan, Co. Monaghan, will be received up to the 5th September, 1907. The plans and specification can be seen at the office of Messrs. W. H. Stephens and Sons, surveyors, 13 Donegall Square, N., Belfast, by whom forms of tender and bills of quantities will be supplied on deposit with them of £1, which will be returned on the receipt of a *bona fide* tender.

Midleton.—In connection with the work of completing the parish church of the Most Holy Rosary, at Midleton, very satisfactory progress is being made with the building of the tower and spire, the construction of which is proceeding apace. The work of raising the tower portion of the sacred edifice was begun in May last, when a start was made at the bell-ringing chamber, at an elevation of 63 feet from the ground. This was practically the commencement of the bell tower, and during the eleven weeks that the building has now been under way, some twenty-two feet in height of the belfry portion has been erected, leaving somewhere about nine feet more for the completion of the tower proper. From this elevation will rise the spire itself, which will go eighty-three feet higher, and which will be surmounted at the pinnacle by a cross, reaching in height twelve feet, and which will be of Celtic design in wrought iron and brass. When the entire work is finished the total height of the tower, spire, and cross together, will be 189 feet from the ground. The work is being carried out in the same limestone that was used in the erection of the church. The tower and spire are being built to the ornamental design in Gothic architecture of Messrs. Ashlin and Coleman, of Dawson Street, Dublin, who were the architects of the church itself. The limestone facing of the tower and spire, in accordance with the design, has been chiselled to correspond with the facing of the church, and laid in a regular coursed pitch-faced ashlar, with vertical and horizontal joints. A bell for the tower will be obtained of Irish manufacture from a Dublin firm, and will be cast in the foundry of Mr. Byrne, in Dublin. This bell will weigh some 2 tons 6 cwt.

Milford.—Tenders are invited for structural additions and alterations, and also for sanitary plumbing work and water supply, to the Manse, Milford, Co. Donegal, for the Rev. W. J. Young, M.A., in accordance with the plans and specifications prepared by Mr. W. E. Pinkerton, M.R.I.A.I., architect, 11 Shipquay Street, Derry. Tenders to be delivered on Saturday, 7th September.

Mullingar.—Tenders are invited for equipment of laboratory for new science hall, St. Mary's College, Mullingar. Applications to be sent to Rev. J. Kelly, C.C., The Palace, Mullingar. Tenders close 28th inst.

Mountrath.—Tenders are invited for building additions and making sundry repairs to Newtown House, Castleton, Mountrath. For plans and specifications, apply to Mr. Peter Roe, Ballykelly, Roscrea.

Thurles.—At a meeting of the Thurles Board of Guardians, Mr. Wren, architect, recommended payment of £287 19s. 1d. to Mr. W. Leahy, contractor for the erection of the Thurles Dispensary residence. The contract price was £1,219. Mr. Callanan drew the attention of the Board to the fact that the sum now certified for included £266 19s. 1d. for extras, and he would wish to be informed on whose authority the extras were carried out? Chairman—I could not say. Mr. Callanan—That certificate ought not be passed by this Board until we get some enlightenment on the matter. Mr. Davy—Well, it seems very peculiar entirely that when a sum was fixed for the contract that over £200 could be added as extras without any instructions from the Board. Mr. Callanan—It is the architect we should question, as I suppose it was he who gave the directions to Mr. Leahy. We should find out who authorised the contractor to add the extras. Mr. J. Leahy was called before the Board, and stated that directions to have the extras included were given by the architect, the medical officer, and the Local Government Board Inspector. Mr. Davy—There was no one entitled to give the instructions outside the Board. They must not have much belief in the Thurles Guardians. They must not look upon them as being very eminent men (laughter). Mr. Callanan—Apparently not, when they can go behind our backs and expend £266 on extras. Mr. Gilmartin—It is a big item; it is nearly quarter of the whole contract. They should ask the directions of the Board before incurring that expense. Mr. Davy—It is a roughshod method of doing business. I will object to the payment of that certificate. The Guardians stated that they attached no blame whatever to the contractor. An order was made directing the clerk to correspond with the architect, enquiring on whose authority the extra items were included.

Tipperary.—The Tipperary No. 1 Rural District Council have made an improvement scheme in pursuance of the Labourers (Ireland) Acts, 1883 to 1906, and the estimated cost of the scheme is £68,295.

LABOURERS' COTTAGES IN IRELAND.

The total amount advanced from the Land Purchase Fund to Rural District Councils for the provision of cottages and allotments under the Labourers Act of 1906 up to the 30th June last amounts to £79,915. The Irish counties which, at the 31st March last, had to their credit unexpended balances of the shares payable to those counties before the commencement of the Labourers (Ireland) Act, 1906, out of the residue of the Exchequer contribution under the Purchase of Land (Ireland) Act, 1901, and the respective amounts so credited, were—Armagh, £4,418; Down, £3,264; Galway, £5,131; Mayo, £9,553; Sligo, £2,933.

IMPORTS.

Port of Dublin.

August 8—Per Frank, from Frederickstadt, 130,480 pcs. planed boards, 14,737 pcs. scantlings, T. and C. Martin, Ltd. Per City of Stockholm, from Ghent, 10,476 bags cement, to order. Per Lady Hudson-Kinahan, from London, 600 sacks cement, Wallace Bros., Ltd.

August 12—Per Glenarm Head, from Montreal and Quebec, 2,200 pcs. firwood sawn, 98 pcs. birchwood sawn, 173 pcs. oakwood, 78 pcs. elmwood, 8,311 pcs. firwood hewn, to order. Per Princess, from London, 400 tons cement, M'Naughton and Co. Per Velinheli, from Port Dinorwic, 100 tons slates, T. and C. Martin, Ltd. Per Hanmure, from Shoreham, 310 tons cement, J. H. Richardson.

August 13—Per Enid, from London, 185 tons cement, Wallace Bros., Ltd. Per J. Milton, from Bridgwater, 190 tons bricks, R. Martin and Co.

August 14—Per Katie Darling, from Cardigan, 105 tons bricks, J. Beckett.

August 15—Per Freda, from Danzig, 1,696 pcs. timber, T. and C. Martin, Ltd. Per Winga, from Goteborg, 130 pcs. doors, 497 bdles. mouldings, to order.

August 16—Per City of Frankfurt, from Rotterdam, 4 cases window glass, to order. Per New Design, from Bridgwater, 4 tons bricks, Molloy and Sons; 10 tons do., H. Moore and Alexander; 90 tons do., T. Archer. Per Penrhyn, from London 345 tons cement, T. and C. Martin, Ltd.

August 17—Per City of Berlin, from Antwerp, 100 cases window glass, Hoyte and Son; 50 cases do., Brooks, Thomas and Co., Ltd.; 30 cases do., J. Kelly and Son; 174 cases do., T. Dockrell, Son and Co., Ltd.; 12 cases do., C. Webb; 510 joists, to order.

August 20—Per Harrier, from Bangor, N. Wales, 180 tons slates, Brooks, Thomas and Co., Ltd.

August 21—Per Lady Hudson-Kinahan, from London, 1,500 sacks cement, T. Dockrell, Son and Co., Ltd.; 200 do. do., to order.

Mr. John Reid, of Malahide, who has recently erected new premises at Blacquiere Bridge, Phibsboro', is at present engaged at the following contracts:—New dwelling-house at Iona Road for Miss Kennedy (Mr. A. Levesey, architect); renovations at "St. Mary's," Tallaght, for the Very Rev. B. Duggan, O.P. (Mr. W. A. Scott, architect); new billiard room and sundry additions to "Auburn," Malahide (Mr. R. Caulfeild Orpen, architect); new hospital at Tullow, for the Co. Carlow Board of Guardians (Mr. James O'Donnell, engineer). Mr. Reid has also secured the contract for the New Glebe at Clara, King's Co. (Mr. R. Caulfeild Orpen, architect).



ENGINEERING SECTION.

ITEMS.

The Education Committee of the London County Council are about to acquire a site in South London upon which to erect an institute for classes in the engineering and building trades, and have recommended an expenditure of £7,000 for such acquisition. The new institution will be organised mainly as a school of building and engineering, with classes for the cognate subjects of physics, chemistry, mathematics, etc.

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At the eighth International Housing Congress, which began its session on August 5th, in the Caxton Hall, Westminster, the Right Hon. John Burns, M.P., President of the Local Government Board, welcomed the delegates on behalf of the Government, and called attention to many of the important problems incidental to the housing question. He briefly touched upon the exodus from the rural districts to the towns, which is taking place on such a large scale throughout Western Europe, a process of urbanisation of the population which spelled its devitalisation. While trusting that the movement would eventually be checked, it was incumbent on all to see meanwhile that spacious, clean, and comfortable houses are provided in which decent lives can be lived. Expenditure on the improvement of the homes of the people was much more worth while than was the spending of vast sums on maintaining prisons, infirmaries, and asylums. At present the cost of maintaining one lunatic was often in excess of the sum the housing reformers would spend on a house for a whole family, and surely there would be fewer lunatics if the mass of the people were better housed. The man who earns less than thirty shillings weekly was the man who needed assistance, for his home to-day was often a hovel, where impulses and appetites were excited which could only be satisfied in the public-house parlour. To build better houses was not enough—the wages of the unskilled labourer must be raised, his education improved, and he must be given better working conditions. Mr. Burns ended with the announcement that he proposed to introduce a Housing Bill next session. A final caution was needed everywhere by the growing democratic spirit. Too much reliance should not be placed on central governments—local authorities in village, township and city, and individuals everywhere, ought to be encouraged to rely on their own resources.

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It is evident that the responsibilities of office have had their due influence on Mr. Burns, and that he has been converted from the theory that the Government should bear entire responsibility for the people in its charge. And it would seem that the speaker might well have gone a step farther and laid more stress on the necessity for individual effort, which is so frequently subordinated to that of the municipal council. The vast engineering schemes of drainage, lighting, traction, and water supply, which so many local bodies are undertaking, undoubtedly tend to better the conditions under which people live, but the debts thus incurred are already enormous, and are increasing by leaps and bounds. These bodies, vested with such wide powers, scarcely need encouragement to extend their projects, for the fever of expenditure consumes them. And all the plans will fall far short of anticipation if individual effort be not more strenuously cultivated; the unfortunate tendency of the modern democrat is to take the good things, which the recent developments of local government shower upon him, with very bad grace, meanwhile railing at those who, by inflated taxes, have to foot the Bill.

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Recent experiments have been made in Belgium with a new coal-tar extract known as "Injectol," for the purpose of preserving wood, and we understand that the results have so far proved encouraging. The product is a thin liquid, dark brown in colour, of regular density, and varying little with atmospheric changes. It has been found to penetrate various woods without pressure, and to withstand decay far better than creosote. The experiments were principally devoted to the treatment of telegraph poles and street paving blocks. Poles treated with injectol have remained unattacked by decay for three years, whilst those which had been creosoted resisted decay for a few months only. Experiments were also made with railway sleepers treated with mixtures of coal creosote, creosote and chloride

of zinc, and injectol. After submersion for two years in a vat of decomposing substances, it was found that the sleepers treated with the new extract were still in good condition, and the others were practically destroyed. Similar results were obtained with the paving blocks.

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In Ireland, probably more than in most countries, the complaint of damp walls is frequently met with, and although in the new schemes for labourers' cottages, which are being widely carried out by the engineers to urban and rural district councils, it is certain that efforts will be made to counteract the evil, yet in old cottages the best remedy is difficult to decide upon. The ordinary lime mortar external rendering and dashing, even if properly executed, is practically useless in most situations; dampness causes the rendering to decay and burst from the walls, exposing the open masonry or brick joints to the full effect of the weather. Cement rendering in most situations will keep out damp if very carefully applied, although walls so treated facing west and south-west, especially near the sea, have frequently been found to be extremely damp, the driving rain having penetrated a coat of cement rendering $\frac{3}{4}$ -inch thick steel floated. The omission of a damp-course, moreover, allowing the ground damp to rise, causes all external remedies to be unavailing, and the insertion of a new damp-course is both tedious and expensive. In such a case an internal remedy is found to be necessary, and the difficulty is to decide upon the best to be adopted. In the annual report of Mr. John McVail, Medical Officer of Health to the County Council of Dumbarton, it is stated that lathing and plastering on studs is usually recommended, but as this involves the evacuation of the premises, it is not often readily agreed to. Moreover, the introduction of the plasterer unfortunately means, as a rule, serious delay, and subsequent carelessness on the part of the occupier spells speedy destruction. Internal cementing dries quickly, and can be carried out with but little inconvenience; the disadvantage is to be found in the condensation that occurs on the hard surface, during damp weather, when the air is saturated with moisture. This is, perhaps, chiefly apparent in bedrooms where fires are seldom lit, and the occupier is continually complaining of the wet appearance of the walls, which is seldom attributed to the proper cause. The alternative is to line the walls with wood, a method usually regarded by engineers, and with much show of reason, more as a means of concealing damp than of preventing it. The convenience of such lining is, however, very great, as it can be executed cheaply and rapidly and without evacuation of the premises. If certain precautions are taken to ensure that the wood lining will do something more than conceal the damp, it may be accepted in lieu of lathing and plastering. The conditions of its acceptance are that there shall be sufficient space, say two inches or three inches, between the wall and the lining, and that this space shall be ventilated both above and below, the ventilation at the bottom being by means of gratings in the walls, as in underfloor ventilation. A wood lining so protected, and also, as is often the case, painted over by the occupier, makes a reasonably comfortable house, and the air space gives the requisite protection against external damp. It is, of course, necessary to see that the standards supporting the lining do not prevent thorough ventilation.

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Canada is taking a leaf from her neighbour's book with the gigantic cantilever bridge, which is in course of erection over the St. Lawrence River, some six-and-a-half miles west of Quebec. It is being described, in a thoroughly up-to-date Yankee fashion, as a 20th century record bridge. Indeed, in many respects, it is remarkable. The total length will be 3,300 feet, and in addition to the substructure of a couple of main piers, the bridge will consist of two 500 foot side spans, extending from the abutments to the main piers; two cantilever arms, each 562 feet 6 inches in length, and a central suspended span, 675 feet long, on the principle of the well-known Forth Bridge. This span is longer than any simple pin-connected trussed girder span in the world. It will thus be seen that the unobstructed channel will be 1,800 feet in width, as opposed to the Forth Bridge, with a main span of 1,710 feet, which hitherto held the record. The latter has, however, two such spans, and is altogether over 2,000 feet longer than its Canadian rival. It is sixty years since the project of the bridge across the St. Lawrence was first mooted, and the present syndicate was organised in 1887, and re-

organised ten years later, when the first really definite plan of action was decided on. The requirements of navigation rendered it essential that a clear headway should be left of 150 feet above high-water level, and the height of the cantilever trusses over the main piers is 350 feet. The structure will be entirely of rolled steel, and owing to the fact that the work has to be suspended for practically half the year, completion is not anticipated for at least two years. The erection is being carried out by an American firm from Philadelphia, and the cost is estimated at close on a million sterling.

While there is so much talk upon the subject of canals, it is interesting to note that the recent half-yearly report of the Manchester Ship Canal is the most encouraging yet issued. Many wisecrackers shook their heads at the expenditure involved in this huge undertaking, and, during its early stages, it appeared that the most gloomy forebodings would be verified. But recently affairs have taken a better turn, and the toll-paying traffic from January to June totalled 2,403,792 tons, an increase of over 150,000 tons on the corresponding period of 1906. The working expenses increased by less than one thousand pounds, and the cash receipts by over fifteen thousand pounds; and, after paying all interest and other charges, there remain £66,025 for transference to the Corporation of Manchester on account of interest on debentures held by the city. Such improvement is undoubtedly most encouraging to those who have staunchly held their faith in the undertaking, and if such continue, as may confidently be expected, it will not be long before the canal becomes a thoroughly paying concern.

An Urban District Council, not a hundred miles from London, has recently held an investigation anent a discovery that a considerable portion of the Council's plant had been loaned to contractors, and that much of it could not now be traced. Such a practice is open to serious abuse, and must naturally mean ultimate loss to the rate-payers. We have had instances of such a course being adopted nearer home, and it is a matter which requires careful surveillance on the part of municipal bodies. Occasions must sometimes arise when municipal plant can be loaned with resulting economy, but special authority should be essential, with a proper number of signatures to prevent fraud or collusion. It should not be overlooked that in the case of loss of plant or materials, an auditor is enabled to require the official responsible for the loss to refund the amount to the Council.

THE PRESERVATION OF TIMBER.

Having regard to the more or less problematical character of the protection afforded by various processes intended for the preservation of timber, the Administration of the State Railways of France decided to make systematic investigation into the whole subject. For this purpose they enlisted the services of Professor H. Devaux, of the Faculté des Sciences de Bordeaux, and M. H. Bouygues, D.Sc., to conduct the necessary experiments. Although the inquiry has not yet been completed, some instructive results have been obtained with regard to the penetration of heat into timber during the process of treatment. In the present state of knowledge it is an open question whether parasitic growths, feeding upon and destroying the living tree, continue to live in and upon timber after it has been cut and applied to structural work. It is generally recognised that wood, consisting chiefly of cellulose, practically indestructible under ordinary conditions, only suffers decomposition in the presence of sap or sap residues containing diastatic ferments and parasites. The absolute sterilisation of all living organisms in timber is consequently a necessary prelude to the injection of merely antiseptic substances, which rarely penetrate for more than a short distance beneath the surface. Moreover, if in timber that has been treated, cracks appear which penetrate to interior parts, neither sterilised nor impregnated, the door is at once opened to destructive agencies in spite of the preservative treatment upon which reliance has been placed. In nearly every process for the preservation of timber, heat is applied in one way or another with the object of effecting sterilisation. In some cases the material is submitted to the action of steam, in others to that of hot air, and in others again it is immersed in a hot solution of the antiseptic substance. Admitting that steaming or other means of applying moist heat is useful for softening and distending the fibres so as to facilitate absorption of the antiseptic liquid, we must not lose sight of the fact that sterilisation is a still more desirable object. Consequently, the penetration of heat into timber properly constitutes the first object of study, in any inquiry into preservative methods.—*The Builder*.

BOOKS RECEIVED.

The Modern Plumber and Sanitary Engineer.

By Sixteen Specialist Contributors, under the Editorship of G. Lister Sutcliffe, A.R.I.B.A., M.R.S.I. London: The Gresham Publishing Co., Ltd., 34 Southampton St., Strand, W.C., 1907.

We have lately received the two first volumes of this, the latest of the Gresham Publishing Company's admirable publications. "The Modern Plumber and Sanitary Engineer" will be completed in 16 volumes, dealing with every aspect of the trade in all its branches. In no practical trade has modern progress made greater changes than that of the plumber. He is no longer the mere rule-of-thumb mechanic—his calling has many "side lines." On the one hand he is required to have a deep and intimate acquaintance with his own trade in the more limited sense of a worker in lead; he is required to be able to fashion artistic productions from his own or other's designs. On the other hand the range of his work is extending in every direction. Sanitary engineering, so far as concerns the dwelling-house, is part and parcel of his calling, while electric bell-fitting and arrangement he must understand in every detail. Hot-water heating and ventilation, too, all come within his range. Gas-fitting as well. The materials of his craft include lead, zinc, iron, brass, copper, tin, nickel, aluminium, marble, pottery, and many other materials. In no other craft is the "botch" so certain to be exposed. The publication of this fine work of sixteen volumes marks an epoch in the trade craft. The Gresham Co. are to be congratulated upon their enterprise in bringing out such a work, which is of no mere text character, but a perfect dictionary of the craft. It is a work which should be in the hands of every architect and every plumber.

The authors include the following:—Messrs. James Gammie, Teacher of Plumbing at Crafts School, East London, and at L.C.C. School of Arts and Crafts, Camberwell; John W. Hart, R.P., A.R.S.I., First Honours Silver Medallist, City and Guilds of London Institute; James Law, M.R.S.I., formerly Captain, Royal Engineers; Gold Medallist, Science and Art Department; Silver Medallist, City and Guilds of London Institute; A. Herring Shaw, M.R.S.I., Teacher of Plumbing at the Municipal School of Technology, Manchester; Harold Griffiths, F.S.I., A.R.I.B.A., Author of *The Plenum System of Ventilation*; E. Thomas Swinson, R.P., Lecturer on Sanitary Engineering and Plumbers' Work under Surrey County Council; formerly Lecturer at East-London Technical College; Honours Silver Medallist, City and Guilds of London Institute; F. G. Bell, A.M.I.E.E., Electrical Engineer; M. D. Wilkinson, M.I.E.E., M.I.Mech. E., Consulting Electrical Engineer; author of *Practical Notes for Electrical Students, etc.*; Frank Broadbent, M.I.E.E., Consulting Electrical Engineer; author of *Dynamo Attendants and their Dynamos, etc.*; Francis William Raynes, R.P., Head of the Department of Plumbing, Glasgow and West of Scotland Technical College; Eustace Sansbury; D. Somerville, South Metropolitan Gas Company; E. Davis, Quantity Surveyor; author of *Quantities and Quantity-taking*; C. Beal.

The summary of contents includes such a wide range of subjects as the following:—Section I. Introductory: Metals and other Materials; II. The Elements of Practical Plumbing; III. Sheet-lead Work; IV. Sheet Copper, Zinc, and Iron; V. Water Supply; VI. Hot-water Services; VII. Warm Air and Ventilation; VIII. Sanitary Fittings and Plumbing; IX. Drainage; X. Crank Bells and Speaking Tubes; XI. Electric Bells and Telephones; XII. Electric Lighting and Heating; XIII. Warming Apparatus: Hot-water and Steam; XIV. Glazing; XV. Gasfitting; XVI. Specifications, Quantities, and Estimates; XVII. Shop Practice, Book-keeping, and Accounts.

The illustrations are clear, abundant, and practical. The index is full and thoroughly ready of reference.

It is difficult for us, in a brief notice, to go into the heads of every detail in so important a work, but it suffices to say that, judging from the two first volumes, the work will, when completed, be second to none in the wideness of its range, and its practical application, and it ought to be in every technical institute and library.

The Gresham Publishing Co. have a Dublin Office at 175 Great Brunswick Street, where orders for the complete work may be placed.

Having regard to the complete character of the work, the fulness of the illustrations, together with the excellence of the letter, the price is most moderate.

INSTITUTE OF SANITARY ENGINEERS.

At a sessional meeting of the Institute, the following paper on "London Building Regulations" was read by Mr. Horace Cubitt, A.R.I.B.A., P.A.S.I. Mr. Baldwin Latham (President) presided:—

In provincial towns, complaints as to the trouble involved in the preparation and submission of plans for the approval of the local authority, and as to the hardship of being compelled to conform to a code of by-laws, are, we all know, by no means infrequent. The provincial architect, surveyor, or sanitary engineer has, however, only one authority to deal with, and only one set of regulations to consider, and there thus appears to be little reason to doubt that he has a much less arduous task in this particular respect than his professional brother in the metropolis. That London regulations are more stringent than those in the provinces is, I believe, a very generally understood fact. It is only reasonable to suppose that in so large an area, with a relatively high population to the acre, the comparatively limited regulations which obtain in provincial towns would not be sufficient to safeguard the interests of the vast metropolitan population. What, however, I think, is not so clearly understood is that, in addition to more regulations, further complications arise by reason of the fact that these regulations are contained in quite half-a-score Acts of Parliament.

To give a general outline of the various regulations, and the authorities by whom they are administered, will be my endeavour—the time at disposal precludes anything more than a rough outline being attempted. At the outset, also, it may be desirable to mention that it appears to be almost impossible to do the subject justice and yet make it interesting. The London Building Act, 1894, which has necessarily to be often referred to, can hardly, for instance, be considered an example of light literature. Taking first the Acts of Parliament, they are found to be by no means a small list. The oldest in date is an Act passed in the fifty-seventh year of George III., commonly known as Michael Angelo Taylor's Act, which relates to the improvement of streets. Then there are the City of London Sewers Acts of 1848 and 1851, which apply only within the City. A somewhat similar but more extensive Act is the Metropolis Management Act of 1855, which, with its amending Acts of 1862 and 1878, applies to the whole county of London, with special reservations as regards the City. Portions of these Acts have been repealed, but they still form an important branch of London's sanitary and building regulations. Additional sanitary provisions are contained in the Public Health (London) Act, 1891, which repealed and re-enacted a considerable number of the requirements of the Metropolis Management Act, 1855, and gave the sanitary authorities many additional powers. In 1893 an Act was passed to amend, consolidate, and enlarge the provisions of no less than 13 Acts then in existence, and having reference to the construction and maintenance of streets and buildings. This Act is now well known as the London Building Act, 1894. In addition to many fresh requirements, it contains a large proportion of the Metropolitan Building Act, 1855, and where in a few instances the dates 1862 and 1878 are met with, comparison will elucidate the fact that the regulations there stated are a portion of the repealed and re-enacted provisions of the Metropolis Management Amendment Acts of 1862 and 1878. Since 1894 two amendments of the Building Act have become law. The amending Act of 1898, which consists of only 10 sections, contains no particularly fresh provisions. That of 1905 is restricted to the question of the provision of means of escape in case of fire.

Mention may, perhaps, here be made of the fact that there are points under the Building Acts of 1894 to 1905 which are stated to be referable to a tribunal of appeal constituted under the Act of 1894. In addition to the Acts previously referred to, there are several (General Powers) Acts both of the City authorities and of the County Council which have reference to the sanitation and erection of buildings, and an important Act which must not be forgotten, though its provisions are not restricted to London, is the Factory and Workshop Act, 1901. It may be said that to a considerable extent the fire-escape provisions of the London Building Act Amendment Act, 1905, are based on the provisions contained in the Factory Act.

The Acts having been mentioned, the question of next or almost equal importance is that of the administrative authorities. First in position is the London County Council, which in 1889 took the place of the Metropolitan Board of Works. The County Council deals with the questions of

main drainage and sewage disposal, the formation and widening of streets, and practically all the requirements of the London Building Act, 1894, except those relating to the construction of other than special buildings, which regulations are administered by the district surveyors. These officials are, however, appointed by, and are removable by, the County Council. The very important fire-escape provisions both of the Building Act and the Factory Act are administered by the County Council.

The Metropolitan Borough Councils were constituted by the London Government Act, 1899, and carry out the duties previously performed by the local vestries and district boards. The Borough Councils construct and maintain subsidiary sewers, and have control over house connections, house drainage, and the fixing of sanitary appliances and fittings. They have also powers, though these only indirectly concern the question of buildings, of street paving, cleansing, and maintenance, and they administer a few of the minor provisions of the London Building Act, 1894. The district surveyors claim to be the official descendants of surveyors appointed during the reign of Charles II. They are, as previously stated, appointed by the County Council, and the London Building Act, 1894, gives them certain discretionary and administrative powers, subject to the right of appeal, as regards points of construction. In the City of London the City authorities have under their own Sewers Acts and under the City of London (Various Powers) Act, 1900, special powers with regard to matters of sanitation, lines of building frontage, and the construction of vaults and cellars.

It is thus seen that in any district in London a person erecting a building has to deal with two authorities: (1) the Borough Council (in the City, the City authorities); (2) the district surveyor; and in cases where lines of building frontage, width of streets, and other special points arise, and also in the case of practically all important buildings, the London County Council—a third administrative authority—must be approached.

As so many Acts have to be considered, and as particular branches of construction or sanitation are treated of in several Acts, it will conduce to a more satisfactory treatment if, instead of taking *seriatim* Act by Act, the main subdivisions of the sanitary or building requirements are taken as a basis. Reference can then be made to all the provisions in the several Acts necessarily dealt with in considering any particular sub-division. The London regulations in question may be grouped in three main sub-divisions—viz. those referring to (1) sanitation; (2) construction; (3) fire-escape. The sanitary provisions may themselves be subdivided as follows: (a) drainage provisions; (b) hygienic provisions, relating to streets, open spaces, heights of buildings, etc., which incidentally safeguard the rights of adjoining and neighbouring owners. Constructional provisions may be sub-divided as (a) those to obtain stability; (b) those to prevent the spread of fire.

Sanitary Provisions.—Drainage.

In the City of London drainage matters are chiefly dealt with under the City of London Sewers Acts, 1848 and 1851. The construction and repair of private drains are dealt with by the former of these Acts, as also is the question of the provision of water-closets in manufactories. By-laws have also been made under the City of London (Various Powers) Act, 1900, which have reference to the construction and fixing of sanitary fittings and appliances. These by-laws, of course, only apply within the City. Main drainage throughout the whole of London and subsidiary drainage in all districts except the City are regulated by the Metropolis Management Act, 1855, and the amending Act of 1862. The vexed question of what is a drain and what is a sewer, though quite as troublesome in London as in the provinces, is on a different footing as regards law. Section 74 of the Act of 1855 distinctly states that the local authority—that is to say, the Borough Council—may allow a group or block of houses to be drained by a combined operation. This section has, however, operated very unfavourably from the point of view of the local authority. In many cases drains in all probability constructed as a combined operation have, in consequence of the lack of record of the consent, been decided by the courts to be sewers, and as such repairable by the local authority. Section 202 of the Act of 1855 allowed the Metropolitan Board of Works (now the London County Council) to make by-laws for regulating drainage, such by-laws not to apply within the City. By-laws have been made under this section and are administered by the Borough Councils, and all drainage work in the county, except that in the City, must be carried out according to such by-laws. The Metropolis Management Amendment Act, 1862, regulates the making of connections to sewers, and requires an application, accompanied by a plan, to be made seven clear days before works are commenced.

Penalties are also imposed by this Act on persons placing buildings or encroachments on sewers. The regulations for the cleansing of cesspools and privies, the removal and disposal of refuse, the provision of proper water-closets in new buildings, though originally contained in the Metropolis Management Act, 1855, have since been repealed, and have been re-enacted and added to in the Public Health (London) Act, 1891. This Act, in addition to the foregoing provisions, also prohibits the establishment of offensive trades, contains regulations regarding the licensing of cow-houses and slaughter-houses, and requires efficient smoke consumption in furnaces. By-laws have been made by the County Council under this Act with respect to sanitary fittings and appliances used in connection with buildings, whether constructed before or after the passing of the Act. These by-laws are administered by the Borough Councils, and do not extend to the City. It will be seen that even as regards only the sanitary regulations several Acts of Parliament have to be considered, and that the law in the City is different to that in force in the rest of the Metropolis.

Hygiene.

This, though, perhaps, rather a medical term, appears to be the most expressive which can be used to describe the purpose for which there are in existence a large number of regulations. The width of streets, though to some extent governed by traffic considerations, is, however, very important from a hygienic point of view. The old Act of the fifty-seventh year of George III. (Michael Angelo Taylor's Act) gives the local authority powers of improving and regulating streets, and this Act, though its operation was originally confined to the Cities of London and Westminster and other specially-mentioned portions of the Metropolis, was, by the Metropolis Management Amendment Act, 1862, extended as regards some of its provisions to the whole of the Metropolis. The formation and widening of streets is now governed by the provisions of Part II. of the London Building Act, 1894, which require an application, with plans, to be made to the County Council, and state the cases in which the Council are empowered to refuse to approve such application. The minimum width for ordinary roads is 40 ft. for carriage traffic roads (except in important streets, where a width up to 60 ft. can be required), and 20 ft. for those used only for foot traffic. Another regulation contained in the same part of the Act is that of Section 13, which prevents the width between buildings in narrow streets being reduced, no new building on ground not previously occupied being allowed to be erected within a prescribed distance from the centre of the roadway. The height of working-class dwellings in narrow streets is also regulated by the same section, no building of this class being allowed to be erected within a distance of 20 ft. from the centre of the roadway to a height exceeding the distance of its front wall from the opposite side of the street. The height of new buildings in streets less than 50 ft. wide and laid out since 1862 is similarly regulated, but otherwise a building is allowed to be erected to a height of 80 ft. to the top of the parapet, in addition to which two storeys in the roof are allowed. If still greater height is desired, the consent of the County Council must be obtained.

The question of lines of building frontage in the City is dealt with by the City authorities under their Sewers Act of 1848, and in the rest of the Metropolis by the London County Council under Part III. of the London Building Act, 1894. In both cases the authority has power, if a projecting building is taken down (in the case of the County Council if it is taken down to more than half its cubical extent), to require the owner to set it back to a fixed line, compensation being, of course, payable. Lines of building frontage are dealt with under the London Building Act, 1894. Section 22 of this Act is to the effect that no building or structure may be erected on a site not previously occupied without the consent of the Council beyond the general line of buildings in any street if the distance of such line of buildings from the highway does not exceed 50 ft., or within 50 ft. of the highway when the distance of the line of buildings therefrom amounts to or exceeds 50 ft. The question of projections in front of the general line is also governed by Section 73 of the same Act. All these regulations have a very large effect in promoting the airiness and healthiness of both streets and houses in London. Similar effect is produced by the space at rear regulations which exist, though to a less noticeable extent, in provincial towns.

These regulations, which are contained in the first portion of Part V. of the London Building Act, 1894, are much too involved to be referred to in detail. Section 41 might well take up half the time at disposal for the whole paper. Let it be sufficient to state that, as a general rule, habitable basements must be lighted and ventilated, and, in addition, an open space be provided at the rear of every domestic

building, the exact level, above the ground or otherwise, of this space being determined by whether or not the building to be erected will abut upon a street laid out before or after the commencement of the Act. The height of the rear of a building is also determined by a diagonal line inclined at an angle of $63\frac{1}{2}$ deg. to the horizontal, the exact position of this line being also decided by the age of the street upon which the building will abut. Existing buildings on old sites are, however, allowed to be re-erected on exactly the same lines. There are special provisions which apply to the laying-out of a cleared area and to the case of working-class dwellings not abutting upon a street, and the question of width of courts in a building in relation to the height of the enclosing wall is also dealt with. It may be well also to mention that none of the regulations with regard to space at rear prevent the erection of a water-closet, earth-closet, privy, or ashbin if they do not exceed 9 ft. in height.

Among the general provisions which may be considered to have reference to the subject of hygiene are those of the City of London Sewers Act, 1851, as regards cellar dwellings; those of the Public Health (London) Act, 1891, as regards underground rooms; of Section 70 of the London Building Act, 1894, with reference to habitable rooms; of Part XI. of the same Act, as to the erection of dwelling-houses on low-lying land; and of Part X. of the same Act, as to dangerous and noxious businesses. All these aim at the prevention, as far as possible, of unhealthy conditions of life.

Construction.—Regulations for Ensuring Stability.

The regulations affecting the construction of buildings are contained almost entirely in the London Building Act, 1894. Buildings are described in this Act to be of three classes:—(1) public buildings; (2) buildings of the warehouse class; (3) those belonging to neither of the previous classes. The thickness of walls and all matters of construction in connection with the erection of a public building must meet with the approval of the district surveyor, there being, however, the right of appeal to the tribunal of appeal. As regards the other two classes of buildings, the thickness of their walls is regulated by the first schedule of the Act of 1894, party walls being required to be of similar thickness to external walls, and cross walls two-thirds of this thickness. There are several by-laws which affect the erection of buildings in London. The character and quality of the materials used for walling are governed by a by-law made under the Metropolitan Management and Building Acts Amendment Act, 1878. A similar by-law determines the materials which are allowed to be used for filling up the site under a building, and a by-law made under the London Council (General Powers) Act, 1890, determines the materials which may be used in filling up any excavation made within 3 ft. of a building. There is also a by-law made under the latter Act which determines the description and quality of the substances of which plastering may be made. It is the duty of the district surveyors to see that the by-laws are complied with. The stability of walls is further secured by the regulations limiting the extent of recesses and openings, these being more stringent in the case of party walls in order to prevent the spread of fire. The district surveyors have discretionary power in the case of breasted chimneys to require additional supports if they consider such necessary. The stability of chimney breasts is safeguarded by the regulation that, if corbelled out, the projection must not exceed the thickness of the wall, and that a chimney breast built in a party wall may not be cut away until the district surveyor certifies that it can be done without injuriously affecting any building. Special regulations obtain with regard to the construction of furnace chimney shafts.

Regulations for the thickness of arches over and under public ways and those for the construction of oriel windows appear to conclude the more important provisions of the London Building Act, 1894, directly affecting constructive stability. Indirectly, however, Part VII. of the Act, which concerns special and temporary buildings and wooden structures, the latter of which are licensed by the Borough Councils, is applied so as to very considerably affect points of construction. It appears to be thought that an authority which licences or approves the erection of a building or structure may thereby be considered to have impliedly warranted its construction, and thus before a licence or consent is issued it is customary to require the rectification of all questions of faulty construction.

In concluding this branch of my subject, mention must be made of the erection of vaults and cellars under streets. This part of construction is subject to the control of the local authority, and in the City is governed by the provisions of the City of London Sewers Act, 1848, and in the rest of the Metropolis by those of the Metropolis Management Act,

1855. The actual work of erecting these portions of a building is, however, subject to the jurisdiction of the district surveyors. The very important regulations of Part IX. of the London Building Act, 1894, as regards dangerous structures, must also be alluded to. The County Council and, in the City, the City authorities have power under the Act to require an owner to take down, secure, or repair a dangerous structure, and, if police court proceedings are in their favour, may, in default of the owner, do the necessary work themselves.

Fire Prevention.

When the regulations for the prevention of the spread of fire are referred to, it means that a very large portion of Part VI. of the London Building Act, 1894, which relates to the construction of buildings, has to be considered. The details of these provisions are so numerous that a brief statement of the most important, and a summary of the remainder, is all that it will be desirable to attempt. The proper construction of party walls and the carrying up of such walls above the roof are, of course, about the most important of the fire-preventive regulations. In the closely-built districts of London this appears to be an essential requirement, although in provincial towns of small populations the carrying up of the party walls to the underside of the slates may be considered sufficient in the case of most buildings. Another very important and closely-allied requirement, which, however, is not contained in the Model By-laws, and which appears, to a very slight extent in American regulations, is that of limiting the cubical extent of buildings. In London buildings of the warehouse class are not allowed to be more than 250,000 cubic feet without being subdivided by brick walls. In special cases the County Council may under certain circumstances consent to this limit being exceeded up to an extreme limit of 450,000 cubic feet. Buildings used partly for purposes of trade or manufacture and partly as dwelling-houses are required, if they exceed a given horizontal area, to have the dwelling-house portion and its approaches separated vertically by brick walls, and horizontally by fire-resisting floors from the remaining portion. Other regulations refer to the placing of timber in external and party walls, the construction and maximum slope of roofs, of chimneys and flues (both of ordinary and of special character), of floors above furnaces and ovens, the fire-resisting construction of staircases and floors in certain buildings, and the construction of projections, which, with certain exceptions as regards shop fronts, barge boards, and cornices, etc., are required to be of fireproof materials. Half timber work is only allowable by the special consent of the County Council.

Fire Escape.

The question of the provision of means of escape in case of fire was till recently restricted to a few sections of the London Building Act, 1894, to the requirements of Factory and Workshop Act, 1901, and to by-laws made for the protection from fire of theatres and places of public resort under the Metropolis Management and Building Acts Amendment Act, 1878, all of these being administered by the County Council. This state of affairs has, however, been somewhat changed by the passing of the London Building Acts Amendment Act, 1905, which is entirely devoted to the question of fire escape. The broad outlines of this Act can be stated without much difficulty, particularly as all the provisions are now in force, although the most important one in relation to existing buildings did not come into operation till Jan. 1 of this year. The Act requires that means of escape in case of fire shall be provided from all new and existing buildings, except dwelling-houses occupied as such by not more than one family, which are occupied, or constructed to be occupied, by more than 20 persons, and from the floors of any building which are more than 50 ft. above the level of the adjoining pavement. The Act applies to the whole county, including the City. The means of escape which can be demanded are such as can be reasonably required under the circumstances of the case—similar wording to that of the Factory and Workshop Act, 1901, the escape provisions of which Act, together with those of the new Act, are administered by the County Council. It is the duty of the district surveyors, when called upon by the Council, to notify to it all existing buildings in their district to which the Act applies, and the Council can then consider the question of serving notices on the owners stating the means of escape required to be provided. The owner has, however, the option of submitting alternative proposals. Other important requirements of the Act are those for the compulsory fireproofing of the roof of every new and existing shop which may project more than 7 ft. beyond the front of a building in which persons are employed or sleep; those requiring the provision of access to

roofs in certain buildings; and those regulating the storing of and means of escape from rooms containing inflammable liquid. It is noteworthy, however, that in special cases, if application is made, the Council can exempt buildings from the operation of the clauses relating to projecting shops and access to roofs.

The question of the giving of notice to the various authorities must now be considered. As a general rule, in the case of ordinary buildings it is not necessary to submit plans of buildings before they are erected, the position in London being thus the reverse of that in the provinces. Till the passing of comparatively recent Acts, by far the greater proportion of buildings of all classes in London were erected without the submission of plans. The erection of buildings then, as now, was allowable if the requisite building notice was served on the district surveyor two clear days before the work was commenced. Recent by-laws, however, made by the London County Council under the Metropolis Management Amendment (By-laws) Act, 1899, which are administered by the Borough Councils, require the submission of plans and sections in the case of any construction or alteration of drainage. Also, in addition to the necessary submission of plans in the case of buildings to which the general rules of the London Building Act, 1894, do not apply, plans are now required in connection with any new buildings which come within the scope of the Amendment Act of 1905. Again, in the case of public buildings, the by-laws made by the County Council under the Act of 1878 require plans and sections showing the proposed construction to be deposited with the district surveyor. The position of affairs thus appears to be that in the case of any important building it will be necessary to submit both drainage and building plans, though, except as regards drainage, the giving of a building notice will be sufficient in the case of practically all ordinary buildings which are not affected by the Amendment Act of 1905.

Realising, as I do, that I have not mentioned many more or less important branches of my subject, such as exempted buildings, temporary buildings, wooden structures, the rights of building and adjoining owners as to party walls under Part VIII. of the London Building Act, 1894, fees payable under the Building Acts—a most important matter from a district surveyor's point of view—the penalties imposed under the various Acts, I yet feel that to further elaborate these questions will be hardly profitable, and I thus pass on to a summary of the effects of the previously-mentioned regulations. To illustrate the procedure usually followed, I will give instances of buildings of different class and the usual course of action taken with regard to the different administrative authorities and their regulations, both before and during the erection of the building. Consider first the case of an ordinary dwelling-house. In this case the course to be followed appears to be comparatively simple. Before work is commenced a building notice must be served on the district surveyor, and drainage plans must be approved by the local Borough Council. In constructing the building, regard must be had to the provisions of the London Building Act, 1894, and to the two sets of sanitary by-laws previously alluded to which are administered by the Borough Council. In the City the sanitary regulations will, as previously stated, be different. In all districts the London County Council by-laws with regard to the filling-in of excavations, the quality and the substances of walls, and of plastering material must also be held in mind. The erection of hoardings must be subject to licences granted by the Borough Councils.

In the case of a more important building, such as a large boarding-house or an hotel, in addition to the procedure instanced in the previous case, if, as is almost certain, the building is proposed to accommodate more than 20 persons, the regulations of the London Building Acts Amendment Act, 1905, become applicable. Drawings must then be submitted to the County Council showing the means of escape in case of fire which it is proposed to provide, and the escape requirements must be satisfactorily met before the building is commenced. If the building in question is a large hotel, and extends to more than 250,000 cubic feet, or has sleeping accommodation for more than 100 people, it will be considered a public building, and as such its construction will be subject to the approval of the district surveyor, to whom plans must be submitted, or, in the event of disagreement, of the tribunal of appeal.

In the case of a building which is proposed to be used as a theatre or a place of public entertainment or resort, while the procedure applicable in the first-mentioned class of ordinary buildings still holds good, this building, however, must also be erected in accordance with the regulations made under the Metropolis Management and Building Acts Amendment Act, 1878, which regulations are administered

by the London County Council. Complete plans, elevations, and sections in duplicate must be submitted in accordance with these regulations, and the number of persons to be accommodated in any particular part of the building must be indicated, and the building must not be occupied until a certificate has been obtained from the London County Council. In a building of this class external shelters projecting over a portion of the footway are almost invariably provided; these must receive the sanction of the County Council. Buildings of this class being public buildings, are also, as regards construction, subject to the jurisdiction of the district surveyor, or, in dispute, the tribunal of appeal.

An Act consolidating the existing sanitary and building regulation becomes, year by year, the hope of an increasingly large number of persons. But at the present time this hardly appears to be within a reasonable distance of realisation. What appears to be more likely in the immediate future is a readjustment of the duties of the three administrative authorities—the County Council, the Borough Councils, and the district surveyors. This subject may, however, be considered to belong to a rather controversial branch of municipal politics, and is, therefore, of necessity outside the range of this paper.

In due course, no doubt, an attempt will be made to give us a more easily understood and better arranged code of regulations. As things are, I believe you will agree with my contention that it is difficult to find a combination of three words of a similar character which has such an extensive and widespread application as "London Building Regulations."

THE STEEL TRADE.

The steel trade has not benefited from the San Francisco disasters as was expected. There have been few inquiries of any moment, and no orders of much consequence as the result of these disasters. For cement and other commodities there have been demands, but not for iron and steel. The German manufacturers seem to be getting what British manufacturers hoped to get. It is understood that America has already contracted for a large quantity of German constructional steel, and that she will contract for a good deal more. The American output of steel bars and billets is insufficient to meet the present requirements of American steel manufacturers, and since at present they have their hands more than full, American consumers are falling back on Germany as the next cheapest source of supply. That means larger orders to the United Kingdom for pig-iron, but our steel manufacturers must look in other directions for new business, and they are likely to find it happily in orders from the Russian Government, and some of the South American Republics. It is rumoured that Russia intends to spend some £20,000,000 in the building of new warships if she can make the necessary financial arrangements, and a good deal of this expenditure may be expected to go into British pockets. The Russian shipyards cannot undertake the work, Americans would charge much more than our shipbuilders, neither France nor Germany could give such speedy delivery as the Clyde and the Tyne, and speedy delivery is among the first of the Russian requisites. Some of the South American Republics, too, want more ironclads, and are likely to come to this country for them. Apart from construction for foreign navies, the outlook for new orders just now is not very promising. There is an over-supply of merchant craft afloat and on the stocks which cannot be absorbed except by an expansion in the world's commerce, which may not come for some little time. But if some of the yards are engaged in building big and costly warships the temporary decline in shipbuilding that otherwise seems unavoidable may be averted. The building of a warship involves large and varied demands on the iron, steel, engineering and other industries, much larger and more varied requirements than the building of an ordinary steamer. Assuming a fair share of the Russian and South American warship orders come to this country it must mean a large consumption of iron and steel, and this at a time when the rebuilding of San Francisco has created an abnormal demand upon other sources of supply.

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ENGINEERING NEWS.

Antrim.—The Larne Rural District Council invite tenders for carrying out work in connection with a scheme of sewerage for the Shore, or Belfast Road, district, Carrickfergus. Plans, specifications, and general conditions can be seen at the office of the engineer, Mr. W. D. R. Taggart, C.E., 51-2 Scottish Provident Buildings, 2 Wellington Place, Belfast. Tenders close August 28th.

Messrs. Young and McKenzie, Scottish Provident Buildings, Belfast, have been instructed by the Belfast Rural District Council, with reference to the water supply of Jordanstown and Whiteabbey, to prepare plans for an increased storage and additional water supply.

Ballybay.—The Castleblayney Rural District Council had under consideration at their monthly meeting the Ballybay sewerage scheme. Messrs. Loudon and Co., Belfast, whose tender for the above-named works at £2,297 12s. 7d. had been provisionally accepted, now wrote stating that they could not, owing to a clerical error in their tender and to the circumstances that had arisen in Belfast, contract at the sum mentioned. They accordingly regretted very much to have to ask that their tender be withdrawn from the competition. The next lowest tender was that of Mr. Patrick Ritchie, North Queen Street, Belfast, at £2,323. In all six tenders had been received. The tender of Mr. Ritchie was adopted.

Carrickmacross (Co. Monaghan).—Election of Town Surveyor.—At the monthly meeting of the Carrickmacross Urban Council, the postponed election of Town Surveyor was proceeded with. The applications were those of Mr. C. M. Tuite, Dundalk, and Mr. W. Wilson, Ballymackney. Four members voted for Mr. Tuite, and two for Mr. Wilson. Mr. Tuite was declared elected.

Dublin.—At the last meeting of the Dublin Corporation, the Council adopted a report which had been received at their last meeting from the Lighting Committee recommending the acceptance of the tender of Messrs. Ferranti, Ltd., for sub-station switchboard, £2,068 2s., of the same firm's tender for feeder panels at £340 5s., and of the tender of the British Electric Transformer Co. for transformers at £2,320 9s. 7d.

The Lighting Committee of the Corporation of Dublin invite tenders for the supply of extra high pressure and low pressure cables. (a) Delivered at their Fleet Street stores, Dublin; (b) laid complete on site in Dublin. Tenders close on September 9th.

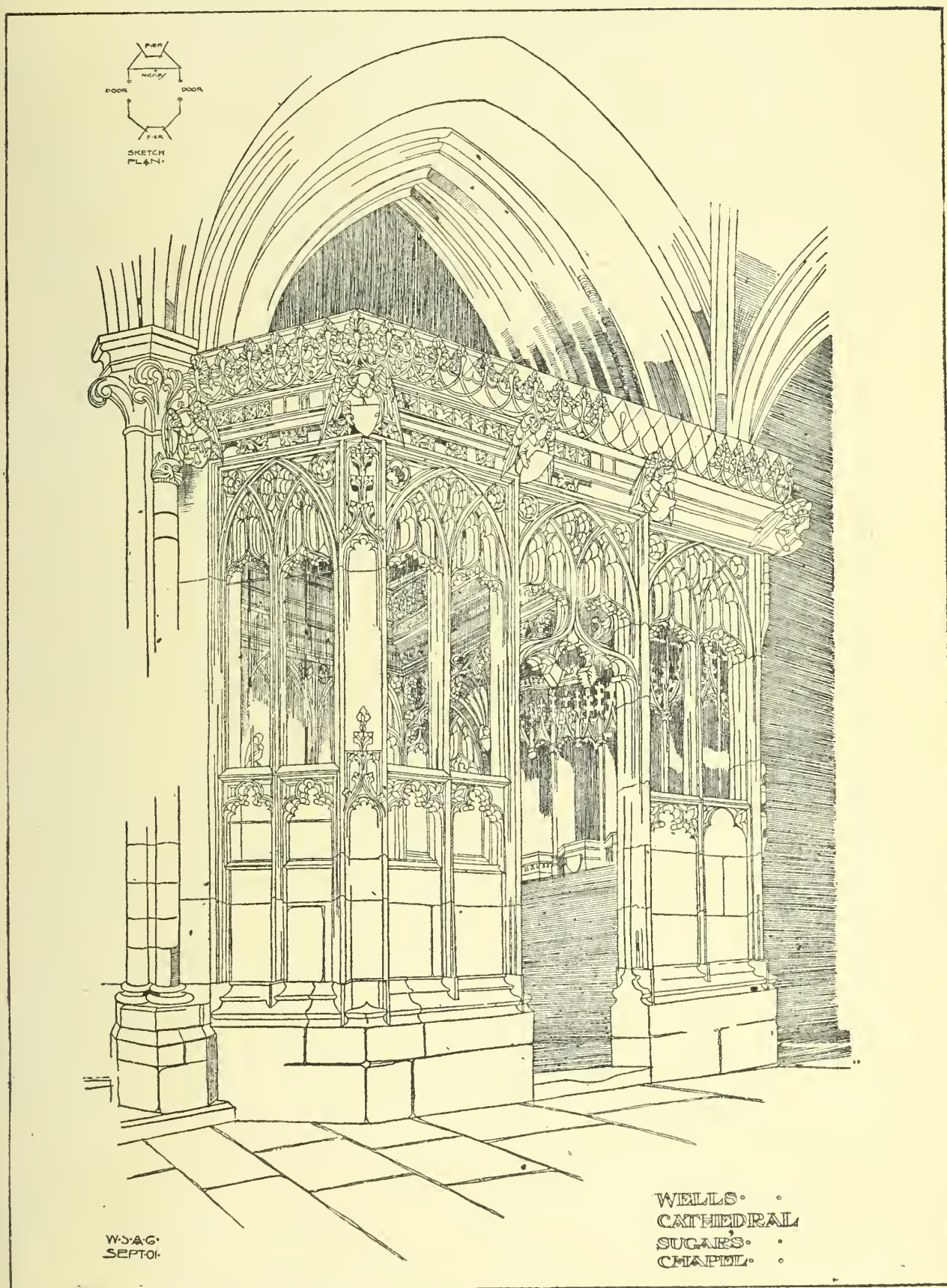
Lurgan.—The Lurgan Board of Guardians have consented to a scheme for new sewage works at the Workhouse, together with the removal of the antiquated windows in the attached infirmary and the substitution of modern ones, according to the design of Mr. Hobart, architect. The total scheme will cost £2,108. Tenders have now been invited for the new sewerage system, plumbing work, and the provision of sanitary annexes, according to the plans and specification of Mr. J. Finlay Peddie, C.E. Tenders close, September 4th.

Mullingar.—As will be seen from our advertising columns, the Mullingar Rural District Council invite the submission of plans for a main drainage system for the town of Mullingar, and are prepared to award a premium of fifty pounds for the best and most suitable sent in.

"PREMIER" BUFF BRICKS.

Mr. Thomas Archer, of 28 Sir John Rogerson's Quay, Dublin, informs us that he has been appointed agent for the "Premier" buff bricks manufactured by Messrs. the Aston Hall Coal and Brick Co., Hawarden. The good qualities of this make of brick are too well known to need any special description. For over 30 years the Hawarden firm have been making a speciality of buff bricks, and the "Premier" brand has been popular in Ireland for many years past.

COMPETENT young man desires situation as Builder's Assistant in or near city; has good experience; thorough knowledge of the trade in all branches; certificates in building construction, carpentry, and joinery; good references. Apply J. D., this office.



THE IRISH BUILDER AND ENGINEER.

A JOURNAL DEVOTED TO

ARCHITECTURE, ARCHÆOLOGY, ENGINEERING, SANITATION,
ARTS AND HANDICRAFTS.

Every Second Saturday.

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HEAD OFFICE

September 7, 1907.

34 LOWER ABBEY ST.,
DUBLIN

Price 1d.

TOPICAL TOUCHES.

The gift of Mr. Carnegie to the City of Dublin amounts to £28,000, to be expended in building libraries.

* * * *

In this issue we publish the official text of the judgment of Mr. Justice Johnson in the recent arbitration case of *Donovan v. Burke*.

* * * *

Messrs. Buick and Sons, Ltd., of Alloa, N.B., have a very interesting stall at the International, containing porcelain fireclay sanitary goods of the highest grade. Every architect and builder should make it his business to see this excellent and interesting exhibit.

* * * *

Another exhibit of great value to those engaged in the design and fitting up of bakeries is the working exhibit of Messrs. Thompson and Co., Edinburgh, Bakery Engineers, whose ovens are being demonstrated by the Dublin D.B.C. staff.

* * * *

Mr. George Jennings, of London, has also a remarkably fine collection of most attractive sanitary specialities, for which he has long been famous. He shows a model of an automatic rotary sprinkler for sewage purification works; it appears both simple and ingenious.

* * * *

On the occasion of his forthcoming visit to Dublin, on the 10th of October next, Mr. Beerbohm Tree will produce a new play entitled "The Beloved Vagabond," by Mr. W. J. Locke, the secretary of the Royal Institute of British Architects. Mr. Locke is already well known as a successful dramatist; although he has been writing plays for at least a dozen years, it was in 1905 that he made his name as a dramatist with "The Morals of Marcus," which was an immediate success.

* * * *

Protest was recently made in the House of Commons in regard to the importation of Portland stone in the new College of Science, Dublin, some of the Irish members speaking in very indignant terms of its employment. We confess that in a great public building, to be erected by Government out of the rates of the country, we can see no earthly reason why the local stone should not be exclusively used. It is no dearer than Portland stone, and, even if it were, cost in this instance is not the chief consideration.

* * * *

On last Sunday week, the memorial erected by the Irish people in memory of the Irish Brigade which at Fontenoy turned the tide of French defeat into victory, was unveiled in the presence of a considerable number of persons from Ireland, as well as natives of the locality of Tournai, in which the memorial stands upon a free site granted by the Communal Council. The memorial, a photo of which, by Lawrence, Dublin, we reproduce in this issue, takes the form of a Celtic cross, and is, for the most part, of Kilkenny limestone, very finely carved; the base is a solid block of Shantalla granite, from the Galway Granite Co.'s quarries. The sculptors were Messrs. Thompson Brothers, of Dominick Street, Dublin, and Mr. Anthony Scott, M.S.A., the architect. A sub-base, which does not appear in the photograph, stands under the base shown.

A lady—Miss P. Bowen-Colthurst—has been appointed Demonstrator of Mineralogy in the Queen's College, Cork.

* * * *

Mr. George Washington France, a Huddersfield architect, was killed in a motor car collision near Doncaster on Monday night.

* * * *

The tender of Mr. George Langley, Dublin, has been accepted by the Corporation of Dublin for the building of the new Public Library, Great Brunswick Street. The particulars of the tendering were published in our last issue.

* * * *

A deplorable accident occurred last week at the building works of the Leat new railway bridge across the St. Lawrence, by means of which many lives were lost. The bridge, when completed, will be the longest bridge in the world, exceeding even the famous Forth Bridge.

* * * *

The Committee of London Architects appointed to consider and advise upon the present state of the foundations and superstructure of St. Paul's Cathedral, have just issued their report, which had previously been made public in a preliminary form. Since then, also, various experimental borings have been made by Mr. Churchward, on behalf of the "Daily Mail." We referred to Mr. Churchward's theories some time ago, and we revert to the subject in the present issue. Mr. Churchward desires us to state that he is not, and lays no claim to, the distinction of "M.I.C.E." with which he has been credited by contemporaries.

* * * *

A quarter of a million men are said to be at the present moment without employment in England. As a contrast, the British Consul at Cologne declares, in a recent report, that in Germany it is impossible to take a railway journey in any direction without being struck with the enormous number of factories being built or enlarged. The builders, he observes, are exceptionally busy, and no man need be idle unless he wishes it. This is a sharp contrast to the United Kingdom, where, except in certain trades, and in the building trade about parts of Lancashire and Yorkshire, the building trade was never so bad in England as at present.

* * * *

Next month the Architectural Association of Ireland will inaugurate the winter session, which, we trust, may be a useful and practical one. We regret to learn that the educational position of the Association is not encouraging. Up to some two or three years ago the Association held two or three free classes for the study of design, construction, and architectural history. They were never very enthusiastically attended, but a couple of years ago the Association inaugurated a new and very practical scheme of classes under paid lecturers. The Association went to much trouble and expense, the lecturers were keen and enthusiastic, and the fees were purely nominal, but the students were conspicuous by their absence, but very few caring to avail themselves of these splendid opportunities. Last session the committee could no longer see their way to maintaining these classes, or asking lecturers to speak to a class of two or three, with the result that all teaching

ceased, and no class (with the exception of a design club) was held during the session.

* * * *

This year it has been determined to revert to the old order of voluntary lecturers. This decision has been come to more with a view to preserving the *raison d'être* of the Association than because of any agitation on the part of the architectural students in Dublin.

* * * *

On last Thursday afternoon, without the slightest warning, the roof of the United Free Church, Rothesay, Scotland (which is described as a handsome and substantial structure), fell, fortunately without injuring anyone. The appearance of the roof timbers is, it is stated, as though they had been sawn across. So far as can be gathered from the newspaper reports, the roof seems to have been a strong tie beam. The damage is estimated at £2,000. The only possible explanation would seem to be the existence of extensive and unsuspected dry rot.

* * * *

At the last meeting of the Corporation of Dublin, it was unanimously resolved to present Mr. Spencer Harty, the City Engineer and Borough Surveyor of Dublin, with the freedom of the city, in recognition of his long and distinguished service under the Corporation. Mr. Harty has been connected with the Corporation since 1861, and has been associated with all the important works undertaken by the Corporation during the long period that has since elapsed. Mr. Harty has also filled the office of President of the Institution of Civil Engineers of Ireland. He is also a member of the Institution of Civil Engineers, London, and has been a frequent contributor of papers on professional subjects at various congresses and meetings. As a courteous and obliging official, Mr. Harty is personally very popular in Dublin; especially amongst architects and engineers who are brought into business contact with him, and who will join in cordially congratulating him.

* * * *

The competition for the great new County Council hall for London was concluded in the preliminary stage last week, by the sending in of hundreds of designs from all parts of the world. The estimated cost is £850,000, but the ultimate cost will probably far exceed that sum. It will be remembered that the project was left over from the schemes of the late "progressive," or democratic, council, whose successors have, however, despite much pressure, decided to proceed with it. One hears the most extraordinarily divergent opinions upon the merits or otherwise of the site. One critic says:—"The site could hardly be bettered. It is on the south side of the Thames, by Westminster Bridge, and will continue the Embankment frontage on that side of the river almost to Charing Cross." While another critic says that none but an English municipality would dream of wasting £850,000 on such a site! Another important County Council improvement is projected in the extension of the Embankment towards Chelsea.

* * * *

Count Plunkett has been appointed, it is just announced, to the important position of director of the Science and Art Museum, Dublin, rendered vacant by the resignation of Lieutenant-Colonel Plunkett, R.E. Count Plunkett is well known and very popular in Dublin, and generally recognised as an authority upon art in general. He is a graceful writer and pleasant lecturer, and Dubliners will be glad to notice the appointment of a native of the city, and one who is the son of a well-known former member of the building trade of Dublin, the late Mr. P. J. Plunkett, of Palmerston Road, Dublin. Count Plunkett is especially known as a close student of archaeology, architecture, painting; in particular he has a wide knowledge of the art of renaissance. His work on Sandro Boticelli is well known and appreciated, in addition to quite a number of works of artistic and literary value and interest. In the hands of Count Plunkett we may be assured that the museum will be sympathetically handled for the best advantage of those most fitted to avail themselves of the opportunities it affords for self-culture.

THE DOLPHIN'S BARN BRICK WORKS.

On the 26th ult. about thirty manual instructors, at present under engagement to local committees of Technical Instruction in Ireland, and who have been attending the Department of Agriculture and Technical Instruction's short summer course of lectures and demonstrations on building construction, paid a visit to the above works at Crumlin Road, Dolphin's Barn, Dublin. The party was under the guidance of Mr. Holden and Mr. Thompson, instructors in charge, and was conducted over the works by Mr. O'Connor, the company's business manager, and Mr. Cassidy, works manager, both of whom spared no effort in thoroughly explaining the various processes of manufacture in connection with the firm's specialities. At the conclusion of the inspection the visitors were hospitably entertained to tea.

The Dolphin's Barn Brick Co., Ltd., was incorporated about ten years ago, and the company acquired fifty acres of land in the vicinity of Dolphin's Barn, on which they erected two brickworks, fitted up with the most modern machinery, for the manufacture of moulded and wire-cut bricks. The clay and shale in the vicinity of the works have been found specially suitable for the manufacture of both varieties, and the record of the company has been one of continual progress. At present over two hundred hands are employed.

There are three Hoffman kilns at the works, each containing sixteen chambers, and capable of burning a total of one and a-half million bricks at a time. The drying floors have a capacity of 160,000 bricks, and are heated partly by exhaust steam and partly by waste flue gases from the boilers. The clay and shale are worked by an extensive system of chain cable tramways. For wire-cut bricks the clay, which requires but little picking, is conveyed direct to three large mixers, where it is thoroughly ground and mixed. The plant in this department is run at a fairly high speed, and is capable of burning out about 40,000 bricks per day. Messrs. D. Kirkaldy and Son, of London, have certified that this class of brick, as made at Dolphin's Barn, will withstand a thrusting stress up to 282 tons per square foot. Shale and clay for the manufacture of pressed brick are conveyed to a crushing mill, and afterwards elevated and passed through sieves of twelve meshes to the inch. There are three Bradley and Craven semi-plastic pressed brick-making machines, having an output capacity of 10,000 bricks each per day.

The machinery at the two works is driven by one compound condensing engine of 200 h.p. and one high-pressure single-cylinder engine of 150 h.p., both of which were built and erected by the late firm of Victor Coates and Co., Ltd., Belfast. Steam is supplied by three Lancashire-type boilers, working at 100 lbs. The latest of the three boilers was built by Messrs. Thompson, of Wolverhampton, and is 30 feet by 8 feet 3 inches, dish-ended.

The Dolphin's Barn brick has gained a wide degree of popularity, as is evidenced by the fact that the War Office selected these bricks for their extensive alterations in Portobello and the other military barracks of Dublin, where over a million of them were used some four years ago. Some 3,000,000 bricks were used in the erection of the Iveagh Trust buildings, Dublin; 4,000,000 in the Kingstown Urban Council's housing schemes, and 1,000,000 in the Blackrock Urban Council's housing schemes. In the extension of the residences for the Jesuit Order in Upper Gardiner Street, Dublin, the company made a large quantity of special bricks to match the old Dublin stock. The bricks have also been used in the construction of the Technical Schools, Kevin Street; the Central Fire Brigade Station, and are being used in the Cabra Convent extensions, Carysfort Convent extensions, St. Agatha's Church, Dublin; and Great Northern Railway Station extensions at Amiens Street, etc. It should be mentioned that every brick manufactured by the Dolphin's Barn Co. is tested by being steeped on trucks in a water tank before being placed in stock. The latest testimonial to the excellence of these bricks is to be found in the fact that they were chosen, after exhaustive comparative tests, for the erection of the new College of Science, where a million of them have already been used. The company has secured the order for all the bricks, except red-facings, for the addition to a library at Charleville Mall, and for the new Carnegie Library, Great Brunswick Street, for which Mr. George Langley has just been declared contractor at £10,000.

LAW CASES.

In the Matter of an Arbitration between Donovan and Burke.

In the High Court of Justice, King's Bench Division, before Mr. Justice Johnson, Mr. Justice Boyd, and Mr. Justice Wright.

The following is the text of Mr. Justice Johnson's judgment, from the official report in this case, already reported in our columns:—

This is a motion to set aside an award on a building contract, and the general conditions are part of this contract. The ninth condition empowers the architect, during the progress of the works, to make alterations not involving additional cost, but if the alterations involved additional cost, and were executed in pursuance of the architect's previous order in writing, then they were to be "extras." By Condition 11, if misunderstanding occurred between the architect and contractor "in reference to the quantities or prices of additions, variations, or omissions," the architect (Butler in this case) was empowered to name a building surveyor to take out or measure said quantities and prices. A copy of his account was to be given to the architect and contractor, who, within a reasonable time, were to furnish their "objections in writing, detailing the items, and unless the architect and contractor agreed," said items were to be referred to arbitration, "and the decision of said arbitrators and umpire as to said items is to be conclusive and binding on the contractor (Donovan), employer (Canon Burke), and architect (Butler), and the account of the building surveyor is in like manner to be binding and conclusive on the same parties as to all items not the subject of objection as aforesaid." The misunderstanding contemplated by the 11th condition occurred—Butler, the architect, named Morris, a building surveyor, who made out and duly furnished his account to Butler and Donovan. On the 18th July, 1905, Donovan furnished his objections in writing, claiming a balance of £501 19s. 9d. due to him in respect of extras and omissions. The architect and the contractor did not agree on these objections; the submission in the 11th condition was made a rule of this Court, and under that 11th condition the only subject of reference was Donovan's said written objection. The arbitration was held, and an award made the 12th September, 1906, which this Court subsequently set aside, and remitted the matter in dispute to the umpire for reconsideration. By his award, 23rd March, 1907, the umpire has found and awarded:—

1. "That Donovan did within a reasonable time object to Morris's account, specifying such objection in writing detailing the items."

2. "That he, the umpire, was entitled to take into consideration only the items in Morris's account for prices as well as quantities objected to by Donovan as aforesaid."

In this I think the umpire was right; it was the only matter of reference within the provisions of the 11th condition. The umpire then "finds and awards that there is due and payable by Canon Burke to the contractor £1,034 18s. 5d. in respect of the said disputes and misunderstandings."

As to the first ground for setting aside this award, I think it is too late now to object to Donovan's objection of the 18th July, 1905, as not being furnished in reasonable time or not detailing items as required by the 11th condition.

That objection was furnished in writing nearly two years ago. Costs to a considerable amount have been incurred in reference to it. The arbitrators and umpire have been able to deal with it as detailing the items, and I think this question should have been raised and disposed of before such delay took place, and before such costs were incurred.

As to the objection that the umpire has awarded one sum instead of awarding on each item, or group of items, I do not think that a valid objection. The award shows that all the subject of reference was dealt with and disposed of.

But I think the award cannot be sustained as to this finding of £1,034 18s. 5d. "in respect of said disputes and misunderstandings." The reference was in respect of Donovan's objection only, and even assuming the umpire to have found in favour of the entire of Donovan's claim, amounting to £501 19s. 9d., the balance of extras over omissions, the award in favour of Donovan is more than double his claim, and it, therefore, includes matter which the umpire was not authorised to deal with; possibly besides extras it includes a general balance on foot of the contract, which was not the subject of reference. But whatever it is, the Court has no power to alter or amend the award, which must, therefore, go back to the umpire to set it right. There has already been so much delay, and so much costs have been incurred, that I think the umpire should not be required in general terms to reconsider his award, but should be required to award specifically whether any and what sum is due and payable to the contractor on foot of his objection,

18th July, 1905, and to reconsider his determination as to costs which are in his discretion, each party to abide their costs of this motion.

Mr. Justice Boyd and Mr. Justice Wright concurred: their observations have been already published from our own report.

We published the above judgment at the time it was delivered, but as there are several points of important building and arbitration law involved, we think it may be of interest to now publish the foregoing official report, which has just been issued.

Application to Wind Up a Company.

In the Chancery Division, Dublin, before Mr. Justice Dodd, sitting as Vacation Judge.

Mr. H. Wilson, K.C., with whom was Mr. Macrory (instructed by Messrs. Hayes and Co.), applied on behalf of Messrs. Robinson, Limited, a creditor to the amount of £127 odd, for an order for the compulsory winding up of M'Ferran and Co., Ltd., which was on 31st May last incorporated under the Companies Acts. The registered offices were at 12, 13, and 14 Tara Street, Dublin, and the objects of the company were to carry on the business formerly carried on by Mr. R. H. M'Ferran, as timber, slate, tile, and cement merchants. Counsel stated that the nominal capital of the company was to be £5,000, divided into 5,000 shares of £1 each, but the amount of capital paid up was £8 by the signatories to the memorandum of association, and £1,887 credited as paid by Mr. R. H. M'Ferran under an agreement between him and the company. The agreement was that the company should take over the business, and the good-will and book debts and leasehold premises, and pay the debts, etc., of the company, then amounting to £4,105, and Mr. R. H. M'Ferran was to be manager at a salary of £300 a year. The petitioners had received at that time a bill of exchange for their debt, but it had not been honoured, and it was admitted that the company was insolvent. Mrs. Eleanor Jane M'Ferran had taken proceedings against the company, and Mr. R. H. M'Ferran claiming and charging that the assignment by him to the company should be set aside, and that an injunction should be issued preventing them from dealing with the company's assets pending the trial of the action. An extraordinary meeting of the company was held on 13th July last, and a resolution was passed that the company should be wound up voluntarily, and that Mr. W. J. Robinson, 111 Great Brunswick Street, merchant, and Mr. Robert H. M'Ferran, should be appointed liquidators. The petition declared that the business also consisted of valuable English and Scotch agencies in the business, and that since the passing of the resolution Mr. Robert H. M'Ferran had been trading with S. H. Guildford under the style of M'Ferran and Guildford. It also stated that the petitioners believed that Mr. R. H. M'Ferran would not take proper steps to defend Mrs. M'Ferran's action, and that in the interest of creditors he should not be continued liquidator. The majority of the company ordered a compulsory winding up under the control of the Court, but counsel said he would be satisfied that an order be made for a voluntary winding up under the control of the Court, and suggested the appointment of either Mr. Robinson, who had been nominated as one of the liquidators by the company, or else Mr. Robert Stokes, of the firm of Stokes Bros. and Pim, of College Green, as an independent liquidator. An intimation had been given to the petitioners that at a meeting of the company the previous day it was decided Mr. Telford (of Messrs. Craig, Gardner and Co.) should be appointed liquidator.

Mr. Ignatius O'Brien, K.C., and Mr. P. O'C. White (instructed by Messrs. John L. Scallan and Co.), appeared for the company, and shortly addressed the Court.

Mr. Bartley (instructed by Messrs. Hunter and Burlaud) appeared for Mrs. M'Ferran.

Mr. Justice Dodd said he would comply with the wishes of the majority of the creditors, as the question was mainly one for them. Mr. Telford was proposed by the company, but he would appoint an independent liquidator, Mr. Robert Stokes, and order that the company be wound up voluntarily under the order of the Court.

LABOURERS' COTTAGES

ARCHITECTS AND ENGINEERS WANTED to write for samples and prices of the cheapest methods for reproducing plans in large quantities. TRACING AND TYPEWRITING done. Drawing Office Materials supplied. Tel. 2278. The DUBLIN DRAWING OFFICE, 17 Westland Row.

SPIDDAL CHURCH.

In our last issue we published a view and certain particulars of the new church at Spiddal, Co. Galway. We now complete this with the following description of the marble altars, font, etc.:—

The High Altar is of Irish marbles and limestones taken from different parts of Ireland. The base is of polished black marble, as are also the two bottom panels and the bottom return pieces at each end. From the base spring four square pillars of rubbed limestone-work, which has a dull ground, and gives relief to the polished work and the panels behind them. On the top of those four square pillars lies the altar table, with two extending pieces, one at each end. From the table-top there is another base springing to the candle benches. These candle benches, the side pilaster, the centre pilaster to the tabernacle, square the circular basis to the columns. The circular cap, mounted with square caps, the arches, the runnings, cornices, and end pilaster, the moulded eaps, and the panelling behind the columns are all made of Irish "pinkagrenna," a very fine marble, taken from Streamstown, near Clifden. This marble has a pinkish and light-green ground, with veins of brown, blue, and green. It is of a very hard nature, and takes a most beautiful polish. The four circular columns are made from the real Connemara green marble, so celebrated the world over. The tabernacle door is a beautifully engraved piece of brass-work. Over the top of the tabernacle is a small arch just above the tabernacle door, and two moulded eaps, from which sprang the centre grand arch, with pilaster and Gothic pinnacles on top, and easing right to the bottom of the dome. These are also of marble. From them springs a beautiful golden dome made from magnificent glass mosaic of Irish manufacture.

The Virgin's Altar is also made from Irish marble. The first part consists of a polished black marble base. From this base springs a portion of panelling as follows:—The bordering is made from Irish dove marble, the centre panelling for front and sides of altar of marble as used in the High Altar; the capping, coming next above the panelling, is made of rubbed limestone, also the altar table top base for statue. All the limestone is simply rubbed to give relief to the polished work in general.

Both altars are the gifts of the Hon. Miss Eileen Morris, who is now a Carmelite Nun.

The holy water font is situated at the belfry entrance. It is of quaint design and most massive, and oblong in shape. The bottom base is made of polished Irish black marble. There are two other bases of rubbed limestone; the third base is designed to give relief to the polished work. From the third base springs a very massive moulded cap, with the holy water basin, both of highly-finished Irish black marble.

There is another holy water font of circular design just inside the main door. The front base is of polished black marble; the second circular base and centre column of rubbed limestone to give relief to the polished work. Next comes the massive cap on top of the centre column and the bowl of the holy water, both of which are very massive and of beautiful design as befits the church. There is a baptismal font of rare design, the first base of which is circular in form and made from polished Irish black marble. From this springs a very fine piece of Irish polished red Shantalla granite. Next is an octagonal base, from the top of which springs eight circular columns of dark greyish Irish granite with tints of red, which form the centre of each octagon mitre. From the top of these granite columns spring eight "pinkagrenna" circular-polished marble caps. Then there is a very fine octagonal piece of black marble forming the bowl for the holy water. As stated, all the materials are Irish.

The famous polished black marble was taken from the Merlin Park Quarry, Galway, the rubbed limestone from Galway, the Connemara green marble from Reccuss Quarry, the "pinkagrenna" from Streamstown, near Clifden; the dove marble from the South of Ireland, the red granite from Shantalla, near Galway, and the dark green granite with tints of red from Lord Killanin's estate at Spiddal.

The altars and fonts have been executed from the design of the church architect, Mr. Scott. The erection of the altars and fonts and the selection of materials were entrusted to the Galway Granite and Marble Co., Ltd., under the very capable supervision of the able manager, Mr. Wm. G. Seale, and the work reflects the greatest possible credit upon them and him. The Galway Granite Co. has only recently been formed, but judging by the success which has already been attained, we are confident that there is a most promising future before it. The carpentry work, including roofing, floors, doors, etc., was done by Messrs. Kelly Brothers, Salthill, Galway, who deserve more than a passing tribute of praise for the excel-

lent manner in which they fulfilled their share of the contract. The finish of the skilful workman is discernible throughout, and the doors are particularly fine.

The stained glass windows were designed by and work of Miss Purser, R.H.A., and a splendid sweet-toned bell is the munificent gift of Mr. Byrne, of the James's Street Foundry.

CORRESPONDENCE.

Architectural Practice Extraordinary.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—It may be of interest to architects—and even more interesting to builders—to know that in a well-known western town there are at present four cottages in the course of erection on one of the leading thoroughfares.

An enterprising merchant is the "employer," having entrusted a local engineer with the preparation of the plans, specification, and also with the supervision.

The interesting note is struck when the following facts are revealed:—The plans were prepared in England; the specification drafted by a carpenter, now styling himself "builder," and who has naturally secured the contract, while the C.E. is posing as the sham architect (in reality the "builder's" foreman.)

To the employer's name we may add U.V.—unfortunate victim—who is, of course, quite ignorant of the above facts, which I know to be absolutely correct.—Yours, etc.,

"TRUTH."

Thurles Board of Guardians and Contractor.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—I have read in your issue of the 24th instant a reference to a meeting of the Thurles Board of Guardians, which conveys the impression that I am responsible for the ordering of a large extra over the contract amount for the new Dispensary Residence, Thurles. This is wholly erroneous, as I refused to go into the builder's account until it was clearly stated on whose authority the extra work was done.

I am surprised that you should publish a matter such as this, which is of no interest to anyone—and which you are not in the habit of publishing—without first ascertaining the truth concerning the statements contained therein.—Yours, etc.,

J. P. WRENN.

16 Nassau Street, Dublin, 26th Aug., 1907.

[The matter above referred to appeared to us to be a matter of public interest, and our paragraph agrees with reports in the local Press.

It is impossible for us to verify everything relating to building matters that may appear in the entire Press of Ireland.

We are pleased to publish Mr. Wrenn's letter, and if the report conveys a wrong impression, we regret any annoyance it may have occasioned Mr. Wrenn.—Ed. I.B.]

St. Paul's Cathedral.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—I have read with interest the report of the Committee of Architects, published in the daily papers, and the article by Mr. Churchward, and the records of his observations and experiments, together with your own observations. The suggestion that the driving of the tunnel for the sewer at such a depth and such a distance from the Cathedral, could do serious harm, seems to me most absurd, as does, in fact, the whole drift of the architects' report, as published. That a sewer, such as this, should cause any trouble of the kind suggested must seem absurd to every practical man—as absurd as Sydney Smith's remark to the child—

"That one might as well stroke the dome of St. Paul's, to please the Dean and Chapter, as stroke the back of a tortoise."

What possible effect upon the foundations could such a sewer have? Simply none. The cause of the failure, if failure there be, must be sought for in some such direction such as Mr. Churchward suggests, and there seems some reason to believe his theory is founded upon fact. The further observation that interference with the "even flow" of the subsoil water has caused disturbance is most difficult to fathom. What does it mean?

The report of the five eminent architects means simply—nothing. It does not apply a single word of sense towards a solution of the problem.—Yours, etc.,

"ENGINEER."

AN AMERICAN APPRECIATION OF DUBLIN.

At the last meeting of the Improvements Committee of the Corporation a letter was read from Mr. Patrick Flanagan, Calvert and Lexington Stn., Baltimore, Maryland, U.S.A. Mr. Flanagan is a contractor, and has carried out a number of public works in Baltimore. During a recent visit to Ireland, he spent more than a month in Dublin, where he availed himself of the opportunity of inquiring into and examining some of the chief works of the civic administration. In regard to the Sewage Disposal works of the Corporation, he states:—"I have been through most of the Continental cities as well as most of the large towns in England and Scotland, making observations for myself of the various works carried out by the municipalities, and as a result of my experience I have no hesitation in stating that your sewage disposal works are the most efficient and complete that I have ever seen. I was also much struck by the expenditure which you have incurred in connection with the use of lime as a precipitant for your sewage, thereby clearly proving the implicit faith which your advisers must place in it, and so profoundly was I impressed by this that I have taken a note of it in order to bring the matter under the attention of the Mayor of our city of Baltimore. I was also equally surprised at the high state of order, cleanliness, and general appearance of the works, and was astonished by such a comparatively small staff." Dealing with the method employed by the Corporation for the collection and disposal of the refuse of the city, and as to the condition of the pavement of the streets, he writes:—"Your destructor, to my mind, is most perfect, and, indeed, I was more than surprised to learn at what a small capital outlay you have been able to provide such a complete plant for this work. The cleanliness and order speak volumes for the discipline which you must have in force at your depot. Before leaving Belfast, on my way to this city, I was shown over the former and its principal works by the city engineer, Mr. Cutler, who told me that when I reached Dublin I would see paved streets and macadam roads equal to the best in any part of the world. In no city in the States are there any streets or roads in any way to compare with those you have in Dublin, and the most striking feature, to my mind, is the perfect crowning and formation of your macadam roads, and the method you have adopted for constructing your water tables. I have driven very considerably through your city during my visit, and I am downright proud to say that I have obtained a great deal of useful information regarding the constructing of roads and streets as a result of my study of your practice here."

Tuam.—Tenders have been received for structural alterations and improvements of Mr. M. Fahy's drapery establishment, The Square, Tuam, according to drawings and specification of Messrs. A. Scott and Son, architects, 34 Lower Sackville Street, Dublin.



By permission]

THE NEW CHURCH AT DUNMURRY.

[W. and G. Baird, Ltd.

AN UNIQUE BATH.

Messrs. Ellkay and Co., Ltd., Contractors to the London County Council, and for other public and private housing schemes throughout the country, notify us of their change of address from 59 Holborn Viaduct to 12 and 13 Upper Thames Street, London, E.C., where their general offices and showrooms are now installed. These new premises are close to St. Paul's, Ludgate Hill, and Blackfriars Stations, and, judging from the excellent illustrations in the pamphlet notifying the change, are most handsome and commodious showrooms, which seem to us to be well worth a visit on the part of those of our readers who happen to find themselves in London. We take particular pleasure in directing attention to this firm on account of one noteworthy housing speciality of which they possess the sole patent rights throughout the world. The idea of this folding bath is that it tips up (when not in use) either against the wall or into a specially provided cabinet. The advantages of this system are obvious. It means that a bath, full-sized, and with hot and cold connections, can be installed in the smallest cottage, in a scullery or other convenient place, or that, in case of an ordinary house, a room is saved, inasmuch as a bedroom may be also a bathroom, the bath being, as it were, only in evidence when actually required. Where the tip-up bath, without cabinet, is used, the floor space required, when not in use, is less than two feet square, and where the cabinet fitment is desired, the space is about two feet nine inches by two feet one inch. Needless to say, in providing such a bath, certain precautions are necessary. It would never do to put into a bedroom a bath which would under any circumstances allow gas from the mains to come into the room. Messrs. Ellkay have, therefore, kept this desideratum carefully in view, and their tip-up bath is the only one of its kind that has received the award of the medal of the Royal Sanitary Institute. Another essential is that special heating arrangements must be provided for installations in houses and cottages where provision for a bath did not form part of the original design. Messrs. Ellkay have seen to all this. They supply most ingenious combinations of ranges and baths, coppers and baths, register stoves and baths, etc., suitable for any style of house, and at remarkably moderate prices. Their range, copper and bath combinations, and "Ellkay" folding baths were shown at the Building Trades Exhibition, Olympia, and the Garden City, Litchworth (including those installed in the prize cottage). We have no hesitation in recommending our readers to communicate with this firm, as their specialities place the possession of a thoroughly up-to-date bath within the reach of many who imagine that, owing to the style of their houses, or for other reasons, such a luxury is quite unattainable.

NEW CHURCH, DUNMURRY.

The foundation stone of a new church at Dunmurry, County Antrim, was laid on August 13th. The site is well elevated, and the church will be seen from all parts of the village. The building is to be in late Perpendicular Gothic style, of stone from the Scrabo Quarries at Newtownards; built in rubble masonry, with smooth margins to the quoins and buttresses, and dressed stonework round the windows and doorways; also for the window mullions and the internal arches. The interior will be almost 90 feet long and 37 feet wide, and is entered through the porch, which forms the base of the tower at the south-west corner, in which is laid the foundation stone. Although the foundations are to be of sufficient strength, it is not proposed to erect the spire at present. The woodwork is to be of pitch-pine, the roof to be covered with Westmoreland green slates. An organ chamber is to be provided, and the building will be heated with hot water and lighted by acetylene gas. The builders entrusted with the work are Messrs. Robert Corry, Ltd., and the architects are Messrs. Blackwood and Jury, M.R.I.A.

An advertisement of the County Council of the North Riding of Tipperary, of special interest to manufacturers of road-making machinery, will be found in our advertising columns, this week.

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Vol. XLIX.	SEPTEMBER 7, 1907.	No. 18.
CONTENTS.		PAGE.
Topical Touches	...	613
The Dolphin's Barn Brick Works	...	614
Law Cases	...	617
Spiddal Church	...	618
Correspondence	...	618
An American Appreciation of Dublin	...	621
An Unique Bath	...	621
New Church, Dummuray	...	621
LEADING ARTICLE:—		
"Essentials in Architecture"	...	622
COMMENTS:—		
Monuments in Sackville Street	...	625
The Panama Canal Project	...	625
Our Illustrations	...	625
Trades Union Congress	...	626
The Forerunners of Petrol and Acetylene Gas Lighting	...	626
A Little Tour in Burgundy	...	626
Catalogues	...	627
New Church, Lismacken	...	627
Condition of St. Paul's Cathedral	...	629
Building News	...	633
Engineering Items	...	634
Marconi Wireless Telegraphy Developments in Ireland	...	634
Clongowes Wood New Church	...	637
Engineering News	...	637
Imports	...	637

"ESSENTIALS IN ARCHITECTURE." *

Mr. John Belcher tells us in his preface to this pleasantly-written and nicely-got-up little work, that his aim has been to write on popular rather than on scientific or technical lines, and for all who are interested in Art. Mr. Belcher has long been familiar to us as a graceful, if not very prolific, writer or speaker on matters relating to what may best be termed the art of architecture, and he has for many years past been looked upon by those amongst his professional contemporaries most competent to judge, as one of the most scholarly of the English architects of the present day, a characteristic he shares with some of the leading English and American architects, who, like himself, have had the advantage of some training in the more academic atmosphere of France, a training that inevitably (whatever else its faults may be—and these we are not now discussing) leaves a stamp of refinement on the architectural taste of those who have profited thereby.

Mr. Belcher tells us that he divides his essay, for that is really what it is, under three heads—"Principles," "Qualities," "Factors," the theme being "Architecture as a Fine Art." Now, here at once we have material for a scholarly and artistic disquisition, appealing to what Mr. Belcher describes as "a small but widening circle of the general public who take an intelligent and critical interest in the architecture of the buildings amidst which they pass their lives, or which they visit from time to time." Time was when that circle was a very wide one, and every gentleman of any pretension to culture or taste, not merely took an interest in, but possessed a distinctly critical knowledge of architecture, even if such knowledge was confined to the one particular style or phase in vogue in his day.

We need not go beyond the many beautiful mansions and dwelling-houses erected during the eighteenth century, and the sense of refinement of taste they displayed. The

gentleman of culture and leisure in the eighteenth century had a knowledge and taste in architecture that unquestionably his descendants of to-day do not possess. Whether professional architects deteriorated consequent upon this decline of taste, or whether they were themselves responsible for such decline, is too large a question to now argue.

In the seventeenth and eighteenth centuries essays and treatises on architecture, dealing entirely with the classical orders or renaissance thereof were common. All of the great masters of the renaissance in Italy wrote on the subject. So did Chambers in England, as well as many of the better men of the two centuries. In addition to their works, essays upon architecture written by amateurs were not infrequent. In 1696 John Evelyn published "An Account of Architects and Architecture, together with an Historical, Etymological, explanation of certain terms particularly affected by architects." Evelyn is described as "Esquire, fellow of the Royal Society," and the work is dedicated to "my most honoured friend, Sir Christopher Wren, Kt., Surveyor of his Majesty's works and buildings." It is evidently a second edition which now lies before us, for it is dated 1706 (but the preface is dated 1696), so that it must have gained a degree of popularity. With it he incorporated "A parallel of the ancient architecture with the modern," described as "written in French by Roland Freart, Sieur de Chambray, made English for the benefit of builders;" also a second edition, and published in 1707—exactly two hundred years ago. It is dedicated to King Charles II. An old MS. footnote in the copy records that it was "written at Paris in 1650." In modern times, if we except the brief period of the Gothic revival, essays of a critical kind suited to general readers have not been very common.

Evelyn's work still remains a comparatively little known, but excellent work on the orders, and contains many original and critical observations upon architecture, and upon rules and guides to an appreciation of beauty in Art.

Mr. Belcher has, by the scope of his work, performed a useful office. Of it, Mr. Norman Shaw says that he is sure "it will arouse enthusiasm in hundreds of readers." Mr. Belcher wishes his readers to think of Architecture—architecturally, tells them how to do so.

Mr. Belcher, as have we, deplores the want of an educated and critical taste in the educated and so-called cultured classes nowadays, and points out that if there is any admiration at all for architecture, it is unreasoning and simply accorded because it happens to be some form of ancient architecture. He traces some of the causes which have led up to this state of affairs.

He lays down that "Truth" must be sought in architecture as the first essential. A building must express its purpose, as its details must express theirs. For example, a church or a town hall—large, dignified, and important. He lauds the uncompromising severity and strength of old Newgate, in London, as marking its prison character. A pretence to antiquity he, of course, condemns. Beauty, another essential, he tells us, is the second great principle, but it is a mystery. It has power to "kindle the imagination and stimulate the emotions." Still, Mr. Belcher throws little light upon that mystery. "Strength," another essential, is one upon which his remarks are more satisfying and helpful. "Vitality" he cites, too, as an essential, and gives many illustrations of his meaning, the figure and form of life depicted in Gothic work by the shafts and ribs of vaulting, the carved pinnacles, and crocketed finials. "Restraint" and "refinement," in turn, find their place in Mr. Belcher's close analysis of essentials. Of "Grace" Mr. Belcher says that a dignified seriousness of purpose should be observed in the appearance of all public buildings, but an expression of the "grace" of life should not be lacking. Mr. Belcher deals separately with various other essentials, such as "breadth" and "scale." These attributes, if we may so call them, constitute the chief of what Mr. Belcher calls "Principles," and it is occasionally difficult to distinguish them, or to know what separates the one from the other. In a further chapter Mr. Belcher deals with "Factors," here again the reader finds himself somewhat in doubt as to how to differentiate between so many "essentials," divided, as they are, into "principles," "factors," etc., not to speak of the sub-divisions such as we have above

* *Essentials in Architecture*. An analysis of the principles and qualities to be looked for in buildings. By John Belcher, Fellow and Past-President of the Royal Institute of British Architects. London: B. T. Batsford, 94 High Holborn. 1907. Price, 5s. net.

noted. Mr. Belcher considers factors to include such attributes as "proportion," "light and shade," "colour," "solids and voids," "balance and symmetry." It is quite easy to see the distinction of character that Mr. Belcher has found in these in the abstract, but in the particular instance of beauty, it is easy to find the building beautiful, but hard to say to which, or how many, of these essentials it is mainly indebted for that quality, or in what proportions they go towards making up the impression of satisfaction produced. But that is the object of Mr. Belcher's analysis. It must be said that the essentials under the heading of "Factors" are much more distinctive than are those of "Principals." Proportion, for instance, is an easily discerned quality to the cultured eye, while "light and shade" are almost equally so. "Solids and voids" are scarcely less clear in their qualities. Mr. Belcher's last chapter deals with "Materials," another easily understood essential.

The truth, of course, really is, that where we can separately trace the distinctive character of every "essential," in a given structure or not, it is the blending of the whole which produces the effect that charms.

Mr. Belcher's essay is, in short, a very engrossing one, pleasantly written, delightfully illustrated, and excellently produced by Mr. Batsford.

COMMENTS.

Monuments in Sackville Street.

It is generally and universally deemed improper to comment upon any matter while still *sub judice*, that is to say, still under the consideration of the Courts of Law; but we dare say we shall be excused for commenting upon a case now before the Courts, and in which a temporary injunction has been granted.

The present position of Nelson's Pillar, right in the centre of Upper and Lower Sackville Street, has often, in years gone by, been the subject of much comment by past generations, and has from time to time cropped up, only to be dropped again. The column undeniably cuts in two, and thus spoils, what is beyond question one of the finest thoroughfares in the world. The proposition to erect a "Parnell Memorial" afforded an admirable reason for removing the Nelson monument to the Rotunda end of Upper Sackville Street, converting it into a dominating ornament rather than an obstructive eyesore as it is in its present position, and placing the much smaller and less obstructive Parnell memorial on the present site of the Nelson monument. But this opportunity has been lost. But it is not of this we write. Quite lately the public noticed some sort of a brick-built structure rapidly rising at the rear of the Nelson monument. Most people supposed it to be one of those numerous electrical transformer stations which so crudely disfigure other prominent parts of the city, apparently without protest by the citizens, but when it became known that this brick structure was an overground sanitary convenience for females, even the long-suffering Dublin public objected. The result was an application to the Courts for an injunction, on the part of certain residents of the street, against the Corporation to restrain them from finishing the work. We have constantly advocated the provision of adequate and properly-fitted sanitary conveniences for males and for females, and there is not the least doubt but that a certain unfortunate and prevalent feeling of false modesty prevented this subject being thrashed out as it ought to have been, and due sanitary provision made in a proper manner. Gradually all the old sanitary conveniences have been swept away, and not replaced by newer ones, and against this we have hitherto now protested; but it appears a strong course to plank down one of these ugly and objectionable structures in the very centre of the foremost street of the city. The result has been that on Wednesday last Mr. Justice Dodd, Vacation Judge, sat specially in the Bankruptcy Court, Four Courts, to continue the hearing of this application on the part of a number of business people in Sackville Street who ask for an interlocutory injunction against the Dublin Corporation to restrain them and their servants and workmen from erecting or continuing to erect in that thoroughfare, upon a site on the north side of and

adjacent to Nelson's Pillar, an overground construction to contain water-closets, lavatories, etc., for the use of the female public. The applicants were Messrs. John McDowell, jeweller and watchmaker, 3 Upper Sackville Street; William Laird, 69 Upper Sackville Street, chemist; John Purcell, 68 Upper Sackville Street, tobacconist; and Messrs. Tyler and Sons, 1 Upper Sackville Street, bootmakers; all of whom carry on business in the immediate vicinity, and they based their application on the ground that the proposed construction would constitute a grave nuisance to them and their customers and tenants, and an injury to their property and business. The erection of the building was also opposed on the general grounds that it would create an obstruction and diversion of the regular traffic in the locality, and would be an eyesore and a deterioration of the character of Dublin's leading thoroughfare. The sympathies of most people will, we fancy, be with the applicants. Having heard the arguments, the judge said he thought the plaintiffs had sufficiently satisfied him that he had a case to be tried, and the only question for him to decide was what was the most convenient thing for everybody. Under all the circumstances he granted an injunction on the same terms as he had already given until the hearing of the case, the plaintiffs to deliver their statement of claim in fourteen days, and defendants to deliver their defence in ten days.

The Panama Canal Project.

In view of the recent revival of public interest in this project, and our remarks made lately on same, the following article, which appeared in our issue of 15th September, 1878, twenty-nine years ago! may be read with interest:—

The project of cutting through the American isthmus for the purpose of establishing a communication between the Atlantic Ocean and the Pacific has entered upon a new stage. A Convention has been concluded between the United States and Columbia, represented by their Secretary for Foreign Affairs, Senor Eustorgio Salgar, on the one part, and Mr. Luciano N. B. Wyse, the chief of the scientific expedition for exploring the isthmus in 1876, 1877, and 1878, and the member and delegate of the International Company for an interoceanic canal, on the other part, by which the privilege of constructing a canal from the Atlantic to the Pacific is accorded to the above company. The vast expense attending such an undertaking has hitherto principally delayed the commencement of the works, for there has been no scarcity of projects. Two plans especially were brought forward. One included the section of the isthmus in Nicaragua, making use of the great inland lake of that country; the other confined itself to the cutting of the isthmus of Panama in the direction of Aspinwall to Panama. The latter project seems now finally to have been adopted, notwithstanding the most eminent engineers of the United States have always preferred the Nicaragua route, basing their predilection on personal inspection of the country. M. Ferdinand de Lesseps, the constructor of the Suez Canal, also gave his opinion in favour of the Nicaragua Canal. In a letter addressed conjointly to the Minister of Nicaragua in London and the Consul-General of that country for France, he describes the project of the Nicaragua Canal as that "which offers the greatest facilities of execution, and the greatest security for carrying it out."

OUR ILLUSTRATIONS.

The Fontenoy Memorial.

This monument, taking the form of a Celtic cross, has been erected in Tournai, Belgium, near the scene of the battle, as a memorial by the Irish people to the Irish Brigade, who fought on the French side in the battle of Fontenoy, and whose valiant charge against the British turned the tide of defeat into victory.

The incident has been well recounted by Thomas Davis in his famous poem.

The cross, which is of considerable size, is of Kilkenny limestone, while the die and base are of polished red Shantalla Galway granite. A sub-base (not shown in our illustrations) will be of limestone.

The cross has been executed by Messrs. Thompson Bros., of Dominick Street, Dublin, from the designs of the architect, Mr. Anthony Scott, Dublin. Mr. Scott (with a member of the committee standing beside him) is shown in our illustrations, which are taken from photographs by Lawrence, Dublin.

TRADES UNION CONGRESS.

On Monday last the delegates to the Trades Union Congress met at Bath, where Mr. A. H. Gill, M.P., delivered his address as President of the Congress. He said when the Congress first met in Manchester, forty years ago, there were 34 delegates, representing 118,367 members. Since that time the movement had been one of steady growth, and at the present Congress there were 521 delegates, representing 1,700,000. In the old days trade unionists were looked upon with suspicion. To-day, all over the kingdom, they found them occupying all classes of public positions. It was gratifying to know that at that Congress there were among its delegates 34 members of Parliament, many Town and County Councillors and magistrates, and a considerable number performing other public duties. Trades unions were practically the only organised movement which persistently agitated for improvement in industrial policy.

Trade Disputes Bill.

When they met at Liverpool, last year, several Bills were before Parliament, foremost among them being the Trade Disputes Bill. The Bill went to the Lords in a satisfactory condition. Many noble lords spoke strongly against it, and seemed anxious to reject the measure, but the voice of the trade unionists had been heard. They had spoken with no uncertain sound at the previous General Election. That evidently steadied the Lords, who did not care to enter into a battle with the organised workers. The result was that they passed the measure against their will. That showed the power which the people had when they were united. They had now the satisfaction of having their funds thoroughly safeguarded. It was no longer possible for employers to secure damages from the unions for the actions of individuals, as in the Taff Vale and other cases. The fight was a severe one, but justice won the day.

Workmen's Compensation Bill.

Another measure dealt with was the Workmen's Compensation Bill, which was a splendid piece of constructive legislation, and showed the advance which had been made in that direction since the Employers' Liability Bill was introduced in 1880. He was pleased to say that on these two measures the whole of the Labour members worked together, and the result was a definite object lesson as to what could be done when all were united.

The Unemployed.

On the question of unemployment, the president asked what was the solution of the problem? Some might argue that, inasmuch as the introduction of machinery had contributed so largely to the result, they ought to fight it. That was a mistake. We were not the only country who were engaged in production. Hence that was impracticable. He was of opinion that they could no more keep back the spread of machinery than Mother Partington could keep back the tide with her broom. The proper course to adopt was to recognise the inevitable, and concentrate energies on securing the best possible wages. In working the machines he was of opinion that every effort should be made to abolish overtime wherever possible. In times of temporary depression the loss ought, as far as possible, to be borne equally by all. It was better, in his judgment, for all to work for five days a week than that one-fifth of the workers should have no employment at all. The main and ultimate solution of the problem was, to his mind, in those trades where depression was most severe, to seek a permanent reduction in hours. But while those means were open to them, there was a large body of unskilled workmen who ought to be temporarily employed in useful work by the State or the local authorities, where there was useful work to be done. No man ought to be allowed to starve.

Old Age Pensions.

How to deal with the poor who were too old to work was the most pressing question of the hour, and he ventured to think they would be acting wisely if they made the subject of old age pensions the first plank of their programme. To-day a satisfactory solution of the problem was that the scheme should be universal, non-contributory, and non-discriminatory, and that it should provide not less than 5s. a week at the age of 60. It was said that there were 2,118,000 persons over the age of 65 in the United Kingdom, and that at that age it would cost 27 millions per year to give each claimant 5s. per week. That could not be correct, as there was bound to be a great saving owing to a pension fund in those receiving poor law relief. It was no part of their duty to show how the money could be found. That was the function of the Chancellor of the Exchequer, who would be able to find sources which could be legitimately tapped. Trade Unionists, however, must insist on the matter being dealt with in such a manner that the aged might end their days in peace and comfort.

THE FORERUNNERS OF PETROL AND ACETYLENE GAS LIGHTING.

(From the IRISH BUILDER of September 1st, 1878.)

"THE GAUDIN LIGHT.—On October 19th, 1838, there were exhibited before the French Academy of Sciences some experiments in a new method of illumination proposed by M. Gaudin, which is stated to be an improved modification of the splendid Drummond light. While Drummond pours a stream of oxygen gas, through spirits of wine, upon unslaked lime, Gaudin pours a more ethereal kind of oxygen, which he conducts through burning essence of turpentine. The Drummond light is 1,500 times stronger than that of burning gas; the Gaudin light is, we are assured by the inventor, as strong as that of the sun, or 30,000 times stronger than gas, and, of course, ten times more so than the Drummond. M. Gaudin states his light to be of three degrees; the first is calculated to supplant the use of common gas, supplying a brighter and whiter light; the second, which is called 'Star Light,' is brighter still, and proposed to be introduced into lighthouses, a focus of the size of a nut giving out a blaze which it requires the protection of green spectacles to survey without injury; the third, which is called 'Sun Light,' is said to possess the dazzling brilliancy of that luminary. The academicians are represented as being thrown into ecstasy by Gaudin's experimental results, but nothing in corroboration of the above startling statements (abridged from the *Mechanics' Magazine*) has yet appeared in England or Ireland, save and except a claim of priority of invention of such light by Messrs. Keene and Gurney."

A LITTLE TOUR IN BURGUNDY.

I may, perhaps, be allowed almost to pirate the title of a well-known book and call this article "A Little Tour in Burgundy," because this best expresses its character. One of the chief difficulties alike of busy men and active students is to formulate a little tour to occupy only a few days, having an architectural object throughout. One knows of this place and that, but it is not easy to amalgamate several places into one convenient brief expedition. And if a short tour be commenced, and any mistake has been made in the plan, the whole holiday may be spoiled, for time is the essence of the little tour. I premise then that the *voyageur* has architectural instincts, a desire to know France better, to be free from his own countrymen and his own newspapers; and so having reached Paris I transport him at once seventy miles southwards to the historic and—to the stranger—rather dull town of Sens. At Sens the cathedral dominates and overwhelms the whole town. The mellow boom of its huge bells seems to signify its mastery of the entire place—everything else is so insignificant in comparison. Yet the new Hôtel de Ville, completed in 1903, is a most interesting modern building, one which, if an amateur may make such a suggestion, is well worth careful study by anyone engaged in the art of architecture. I say nothing about the resemblance of Sens to Canterbury—these and other things have been said many times before; but where among cathedrals is there, as I think, so conspicuous and clear an example of the union between Eastern and Western architecture as in the pillars of the nave? With the square abacus, the floriated ornamentation of the capital, and the swelling roundshaft, they seem transported direct from some Grecian temple. And the eye glances from them to the pointed arches and windows of the choir, purely Gothic in expression and feeling. From Sens to Troyes is about forty miles by rail, and those who have the time—and the energy—can easily accomplish a visit to this town and its cathedral in a day, returning to Sens to continue the little tour southwards into the heart of Burgundy. At the junction called La Roche the main line is left, and in less than an hour one is at Auxerre. However warm the day may be one should always walk from the station to the town—the half-mile of road as far as the river is hot, dusty, and shadeless, but in front of the escarpment above the broad and tranquil Yonne is grouped the town and its churches—in the centre the east end of St. Etienne overhangs the river, beneath it is the Romanesque gallery of the old Episcopal Palace; on one hand is the tower of the former Abbey Church of St. Germain, and on the other is the ornate tower of St. Pierre. The houses of the city, picturesquely grouped between these buildings, give a singular completeness to the scene. But the moment the actual city is entered this impressiveness disappears. The streets are narrow, the houses insignificant if often picturesque. The churches, interesting and remarkable, become single buildings, the ornate West thirteenth century front; the interesting sculpture and details of the exterior would alone make the building worthy of a long visit; but for simple picturesque force, the *tout-ensemble* of Auxerre from a distance is not easily equalled.—*The Builder*.

CATALOGUES.

The Carron Company, of Carron, Stirlingshire, send us a well-illustrated catalogue of their gas-heated steam radiators and condensing gas stoves, which are amongst their newest specialities. These radiators are designed for places where the ordinary stoves or coal fires are not applicable, and are specially adapted for shops, churches, offices, entrance halls, workrooms, and such like. The design is of a simple and up-to-date character, though highly ornamental in appearance. If preferred, a plain pattern, without ornamentation, can be supplied. The burners are atmospheric, and may be lighted at either side. The radiators are highly finished on both sides, and may be placed in any position to suit gas supply. No flue is required, and a cast plate is supplied to protect the floor. A special feature of this apparatus is a gas regulator, which reduces automatically the consumption of gas as the radiator becomes heated, so that a most economical mode of heating is secured. The "Carron" Patent Hygienic Induction Condensing Gas Stove is constructed according to the essential requirements laid down by the *Lancet* Special Analytical Commission, which states that a "gas stove should afford radiant heat only," so that the air does not lose any of its essential properties, by passing through heated metal pipes. In the "Carron" stove this feature is secured by condensing the products of combustion by passing them through tubes, so that the heated air is not vitiated, no flue, therefore, being required. The "Carron" Company's manufactures, in all of their many departments, are famous for their quality, and our readers need have no hesitation in relying on the heating apparatus referred to above. The Dublin depot is in Grafton Street.

NEW CHURCH, LISNASKEA.

On Sunday, the 18th August, the Church of the Holy Cross, Lisnaskea, was solemnly dedicated by the Most Rev. Dr. Owens, Lord Bishop of Clogher. The foundation stone of the church was laid by Dr. Owens on Sunday, 14th September, 1902. The old church, built in 1815, was pitched on a precipitous hill at the rear of the town, and the way of approaching it was an old boreen. The building of the little chapel was hurried on, and owing to the scarcity of funds, had to be very roughly finished. Year after year people complained of its inconvenient position, of its being too small, and of the general decay which seemed to seize on the whole structure. Thus the years passed. Toura and Belleck adorned Erne's banks with pretty shrines. Lisbellaw and Cradian churches were built. Brookeboro' Church was restored, and Newtownbutler added its tasteful church to the number of Fermanagh's modern ecclesiastical buildings. The worst, and far the worst, church in Clogher—from Dundalk to Bundoran—was Lisnaskea. At long last a start was made. A site was given by the landlord, and the people of the parish began to build a shrine worthy of them and their parish. The new church is in the Gothic style of architecture, and is built on a hill overlooking the town, and in the centre of a most picturesque district. From the hill can be clearly seen the famous "Fort of the White Thorn" that for centuries witnessed the inauguration of the chieftains of the great Maguire family. Mr. T. F. Macnamara, Dublin, was the architect of the new church.

In the review of "The Modern Plumber," which appeared in our last issue, it was mentioned the work would be completed in sixteen volumes. This should have been six volumes, which necessarily makes the work considerably cheaper.

CONDITION OF ST. PAUL'S CATHEDRAL.

The report of Sir Aston Webb, R.A., F.R.I., B.A.; Mr. John Belcher, A.R.A., F.R.I., B.A.; Mr. T. E. Collett, Pres. R.I., B.A.; and Mr. Mervyn Macartney, F.R.I., B.A., the surveyor to the fabric, forming the Committee of Architects appointed by the Dean and Chapter to inquire into the condition of St. Paul's Cathedral, has now been delivered. The Committee arrived at the following conclusions and recommendations:—

"After mature deliberation and a thorough examination of the Cathedral and its foundations, we are of the opinion that, in spite of the settlements, there is no immediate necessity for any extensive remedial measures to be undertaken; but this conclusion is based on the assumption that the present conditions of the subsoil and the present water level will be maintained. We are strongly of the opinion that the sensitive condition of the structure makes it necessary that the church should be kept under constant observation, and we understand that a scheme for this has been formulated by Messrs. Barry and Leslie, your engineers. We recommend that your surveyor be instructed to make the necessary arrangements for its adoption, and for reading to be taken every three months. We also recommend that the conditions of the subsoil and the state of the water level be carefully watched and periodically recorded, as all official investigations point to the same conclusion that in them lie the possibilities of future dangers. In this connection attention should be given to all building operations in the neighbourhood, or mischief of a more serious nature may arise. We may mention that we have most carefully considered the various safeguards and remedies brought forward at our meetings and published by the Press, and others interested in the building, but we do not advise works of underpinning or of screening the foundations of the church. We consider that such operations would only be attended by fresh dangers. On the other hand, we consider that there is a large amount of structural work required in repairing the fabric which should be proceeded with without delay."

The condition of the external stonework also calls for attention, and we have had the advantage of the opinion of Professor Church, who advises the removal of the incrustations of soot and gypsum by a wood tool, and the experimental spraying of portions of the surface with baryta.



Illustration by permission]

[“Fermanagh Herald.”]

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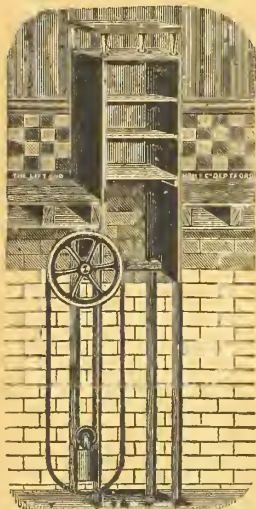
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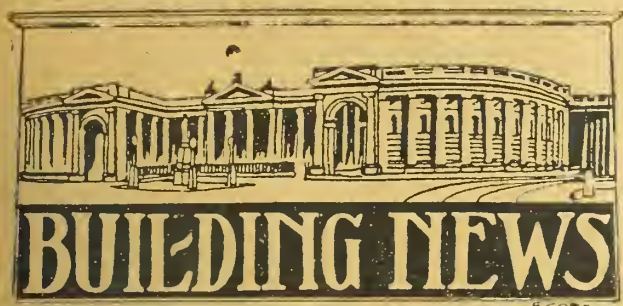
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Belfast.—On Sunday last was laid the foundation stone of the new church of St. Columbkille, Ballyhackamore, by the Most Rev. H. Henry, D.D., Lord Bishop of the Diocese. The style which has been selected for the new church is Celtic-Romanesque, which was the distinctive feature of ecclesiastical architecture in Ireland in the eleventh century, and the beauty and devotional effect of which, apart from its natural aspect, renders to the surroundings a most effective structure. Built of the native stone throughout from the district, with its lofty campanile rising from the north aisle, and the making up of the continuous aisle by the vaulted Lady Chapel, will, when finished, render the Church of St. Columbkille always a mark of the advance of our ancient churches, rather than the adaptation of French Gothic or early English works, and is a fit tribute to the saint to whom it is to be dedicated, St. Columbkille, who, in early ages, carried the banner of the Catholic religion forward through times of persecution and famine. The building operations are entrusted to Messrs. J. Courtney and Co., and under the supervision of Messrs. E. and J. Byrne, architects. In the building of the church preference will be given to Irish material and workmanship as far as possible.

The Local Government Board have sanctioned a supplemental loan of £10,000 for the purpose of extending the Infectious Diseases Hospital at Purdysburn.

The contract for the new church for the Redemptorist Fathers, at Clonard, Belfast, has been secured by Messrs. D. and A. Macnaughten, of Randalstown. The contract amount is over £20,000. The architect is Mr. J. J. McDonnell.

Bailieborough.—At a meeting of the District Council the appointment of architect took place under the Labourers' Acts. Before the tender box was opened Mr. Philip Clarke said that they should accept the lowest tender. Chairman—I will vote for the lowest tender myself, and let the L.G.B. decide as to the qualifications. Applications were read from Mr. Wilson, Carrickmacross; Mr. Patrick Brady, Drumsho; Mr. Charles Tuite, Dundalk; and Mr. Patrick O'Reilly, Buise, Virginia. The terms in Mr. O'Reilly's tender, the lowest, were £1 2s. 6d. for architectural work and 6s. for marking each site.

Ballybay.—Operations in connection with the Ballybay sewage and waterworks have recently commenced, and are being pushed on very rapidly.

Bray.—The report of the Public Health Committee states that the Local Government Board had approved of the amended scheme for the erection of thirty-seven workingmen's dwellings on the Purcell's field site, pursuant to an agreement entered into between the plaintiffs and defendants in the case of Bradshaw and another *versus* the Urban Council. Mr. S. H. Bolton, Hume Street, Dublin, was appointed quantity surveyor in connection with the scheme.

Carrickmacross.—A good deal of interest is manifested in the result of the recent interview between a deputation from the Urban Council and the Local Government Board and the Board of Works. The object of the deputation was to obtain the surplus of the Council's outstanding borrowing powers, which represent about £4,600, in connection with the purchase of Carrickmacross market rights and buildings under arrangement entered into with the present owners. A report obtained in town that the Local Government Board were most anxious to facilitate the Council, and directed the deputation to the Board of Works, the officials of which received them most kindly.

Cootehill.—The Cootehill Board of Guardians have decided to erect a new residence for a medical doctor in the Dawsongrove dispensary district. Mr. P. Cahill, C.E., Dundalk, is preparing plans, etc., in connection with same.

Clones.—Mr. Peter Martin, contractor, is at present carrying out some necessary repairs to the Clones Town Hall, under contract with the local Urban Council.

Cavan.—Extensive additions and improvements are being carried out to St. Patrick's College, Cavan, under the supervision of Mr. J. J. McDonnell, Belfast.

Cork.—Tenders have been received for forming portion of Garrison Hotel premises, Cork, into dwelling-houses. The architect is Mr. Samuel F. Hynes, F.R.I.B.A., 21 South Mall, Cork.

Dublin.—The tender of Messrs. J. and P. Good, of Gt. Brunswick Street, Dublin, has been accepted for rebuilding the Sackville Press, Findlater Place (printing works of the "Irish Builder and Engineer") in accordance with drawings and specification prepared by Messrs. Doolin, Butler and Donnelly, Dawson Chambers, Dublin.

Mr. J. Whelan, Clanbrassil Street, is at present carrying out alterations at 56 Marlborough Street for Mr. J. Wood Latimer.

Messrs. J. and P. Good, Ltd., Great Brunswick Street, are making alterations at 40 Ormond Quay, Dublin, for Messrs. Cahill and Co., printers.

Extensive alterations are at present being carried out at Lansdowne Road, at the grounds of the Irish Rugby Football Union, by Messrs. H. and J. Martin, Ltd., Grand Canal Street. A new wall is being built the entire length of the road frontage, including three large entrance gates, with cut-stone facings. The old stands are being removed, and a large new iron stand is being erected by Messrs. Moreland and Son, London. The work is being carried out under the supervision and designs of Mr. R. Caulfeild Orpen, South Frederick Street.

Estimates are being obtained for the building of new shops in Wexford Street for Mr. Gallagher, according to plans and specifications of Mr. F. W. Higginbotham, C.E., 9 Lower Sackville Street, Dublin.

Mr. Higginbotham has also prepared plans for the following works:—(1) An annexe for the Orange Hall, Rutland Square. It is expected about £2,000 will be expended on the work, and tenders will be invited shortly. (2) A bungalow at Santry for Mr. Garrett; estimates are invited. (3) Plans and specifications for two houses at Connaught Street for Mr. Coghlan. Tenders will shortly be invited.

Extensive restoration work is at present being carried out to the front of Merrion Hall, Lower Merrion Street, for the trustees. The greater portion of the work was originally executed in Caen stone, which had become very much defaced, and which is now being cut out and replaced with new Portland stone, the Portland stone already existing in the work being cleaned down to match the new, so that the whole will present a uniform appearance when completed. The insertion of new windows and other alterations are also included in the contract, which is being carried out by Messrs. McLaughlin and Harvey, Ltd., Dartmouth Road, from the designs of Mr. Geo. P. Beater, M.R.I.A.I., 17 Lower Sackville Street. Quantities for the work were prepared by Mr. Geo. Metcalfe, College Park Chambers.

Dundalk.—Mr. John F. McGahon, architect, Roden Place, Dundalk, invites tenders up to the 17th inst. for building a dwelling-house on Point Road for Mr. Thomas Mulholland. He also invites tenders up to the 18th inst. for building new dwelling-house in Seatown Place for Mr. P. J. Murphy.

Emly.—Tenders have been received by the committee of the St. Ailbe's Co-operative Agricultural and Dairy Society, Ltd., at Emly, for building a manager's residence adjacent to their creamery. Mr. J. B. Kirby, C.E., Tipperary, is the architect.

Ennis.—Asylum Extension.—At a recent meeting of the County Council, Mr. O'Regan read a letter from Dublin Castle addressed to the secretary with reference to his stating that the Council had deferred for the present the question of enlarging the District Lunatic Asylum. The Lord Lieutenant called attention to the last paragraph of his letter of 16th, in which the Council were informed that until steps were taken, not only to convert Tulla Workhouse into an auxiliary asylum, but also to enlarge the Ennis Asylum, His Excellency could not be satisfied that they had fulfilled their duty with respect to accommodation and buildings for the lunatic poor. His Excellency now desired to say that unless within six months from 1st ulto. some definite steps were taken to provide accommodation for the treatment of acute and recoverable cases he would be compelled to consider the question of withholding the capitation grant for pauper lunatics.

Fenagh (Co. Limerick).—Designs, specifications, and estimates will be received by the Rev. Thomas Liston, P.P., on 1st October, for supplying and erecting a marble altar, including foundations, at the Roman Catholic Church, at a price not to exceed £200. Mr. James D. Leahy, Newcastle West, is the architect.

Kanturk.—Labourers' (Ireland) Acts, 1883 to 1906).—The Council of the Rural District have lodged with the Local Government Board for Ireland an application for an order confirming an improvement scheme made

by them under the above-mentioned Acts at an estimated cost of £75,448. Mr. W. H. Bredin, Inspector of the Local Government Board for Ireland, has held an inquiry as to the propriety of confirming such scheme.

Keady.—Markets and Water Supply.—Mr. P. C. Cowan, C.E., Chief Engineering Inspector under the Local Government Board, has held a sworn inquiry in the Town Hall, Keady, with reference to the application of the Keady Urban Council for a loan of £2,000 to enable them to purchase the markets and tolls of Keady—including the Town Hall and other premises—from the trustees of the Kirke estate, and also for the loan of £600 for the purpose of executing certain works with the object of improving the existing water supply of the town.

Limerick.—Asylum Drainage System.—At a recent meeting of the Board of Guardians Mr. Counihan, solicitor, submitted the opinion of counsel, Mr. Patrick Kelly, as to the liability of the architects for alleged defects in the drainage system. Counsel, after careful inquiry, was of opinion that the defects in the drainage system were not due to the original plans, or to those amended, but to the difficulties of the site. The insufficiency of fall, as Mr. Horan, the County Surveyor, stated, and the difficulties of same, were of common occurrence, and defects in the drainage system as constructed were by no means exceptional. In face of Mr. Horan's opinion, and contemplating the enormous cost of an action, involving matters highly technical, of extreme complexity and enormous detail, and entailing a mass of expert evidence, with the incidental delay and expense of a trial, counsel did not advise an action against the joint architects or any of them. Mr. Frost read a letter from Mr. P. O'Meally, T.C., stating that he had to leave town that day, and did not expect to be back for the meeting on Wednesday. Considering there was such a large amount of ratepayers' money involved, he suggested that a copy of Mr. Kelly's opinion should be furnished to each member of the committee, with a view to having the matter dealt with at the September meeting. The Mayor said that having heard the opinion read, he took it that the members did not want to have anything more to do with the matter. Mr. Feheney agreed. It was on Mr. O'Meally's proposition the committee agreed to have counsel's opinion taken, and, having heard it read, they should let the matter drop (hear, hear). The Mayor—We are all perfectly satisfied. It was unanimously decided in the circumstances that no further action should be taken in the matter.

The Town Clerk of Limerick has received a communication from the Department of Agriculture, stating that they have approved of the plans for the proposed Technical Institute for Limerick. It is expected that a sworn inquiry will soon be held by the Local Government Board into the application for the loan of £9,000 to carry out the work, and also as to applications for loans of £25,000 for block-paving, and £5,000 for the building of artisans' dwellings.

Lisburn.—Mr. James McNally, of Lisburn, has secured the contract for the building of Wm. Foote Memorial Schools. Mr. J. St. J. Phillips, A.R.I.B.A., Belfast, is the architect.

Limavady.—Mr. Wilson, C.E., has informed the District Council that he could not prepare plans of a cottage to meet the Local Government Boards' requirements that could be built for £110. It was agreed to ask the Local Government Board to sanction an expenditure of £185 for each cottage to include the cost of the land, legal, and all other expenses.

Monaghan.—The committee and members of the Monaghan Branch of the Y.W.C.A. are to be congratulated on the success that has attended their efforts in raising funds for the erection of their new hall, as we understand that the contract has now been placed, and that a commencement will be made with the erection of the hall in the course of a few weeks. The proposed hall is of attractive external appearance, while internally it is commodiously arranged, and well adapted to meet the needs of the association. The building has been designed by Messrs. Speirs and Company, of Glasgow, and will be erected by them on their well-known system of composite iron and wood construction, which is now being largely adopted for all kinds of habitable buildings.

The Rural District Council will on the 16th inst. consider tenders for building seventeen single labourers' cottages, including fencing the plots attached to same.

New Ross.—Mr. George L. O'Connor C.E., M.R.I.A.I., 108 Great Brunswick Street, is at present preparing plans for additions to the Convent of the Good Shepherd, New Ross.

Rathdown.—At the meeting of the Rathdown Board of Guardians Mr. John Cullen moved a resolution to the effect that £700 be expended in providing a proper dispensary at Stillorgan. The existing dispensary, he said, was a ramshackle structure, without the necessary accommodation, and altogether inadequate for the requirements of the district. Mr. Philip Byrne seconded the resolution. The chairman also spoke in favour of the motion, which was carried unanimously.

Waterford.—The contract for the structural improvements in the Church of SS. Peter and Paul, Clonmel, which is in the hands of Messrs. Hearne & Son, of Waterford, is progressing rapidly towards completion, as is also the work of extension at the Franciscan Church, Waterford. As to the first-named work, the principals are being placed in position in the roof, and slating will shortly commence; none but Victoria Quarry slates will be used. In the structure no less than 40,000 bricks were required. It is expected that at the present rate of progress the church will be completed well within the stipulated time.

Youghal.—On last Sunday, in the village of Curtroe, about four miles from Youghal, the scene of some of the hottest fights following the adoption of the Plan of Campaign by the tenants on the Ponsonby estate, the new Church of St. Ita was dedicated by the Most Rev. Dr. Browne, Bishop of Cloyne. The church is a Gothic structure of the early pointed type. The treatment is simple, but dignified. A single nave with high-pitched roof, tall, well-proportioned single-light windows on the side walls, a graceful three-light window on each gable, with a belfry on the apex of the front gable, and a simple vestry nestling under the eaves of the western walls. This is the exterior presentment of St. Ita's Church. The architects were Messrs. Murray and Son, Youghal.

TENDERS.

Additions and Alterations to Manse, Convoy, for Committee. Architect, Mr. John M'Intyre, Letterkenny.

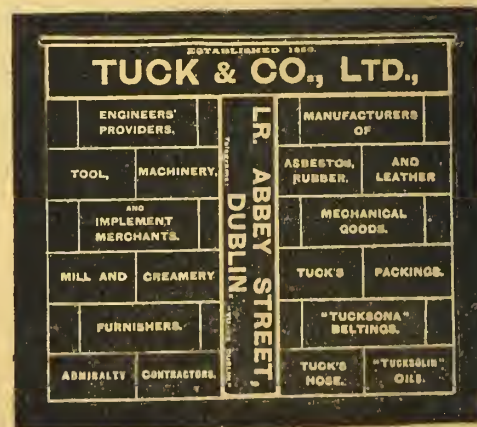
	£	s.	d.
George Kelly, Convoy ...	518	5	0
S. Donnell and Co., Strabane ...	480	0	0
James Johnston, Milford ...	377	14	0
Edward Broly, Letterkenny ...	368	12	0
James M'Grath, Sion Mills, Convoy ...	363	9	0
Wm. M'Quade, Riverdale Castle ...	360	9	0*

* Accepted.

A NEW JOINTING MATERIAL.

We have received from Messrs. Tuck and Co., Ltd., Lower Abbey Street, Dublin, particulars of a new jointing material called "Lead Wool," which has apparently many advantages over the old-fashioned system of jointing gas and water mains. The method of applying this material is evidently extremely simple, entirely dispensing with the fire and ladle hitherto indispensable; and it is claimed that a saving, amounting in many cases to as much as twenty-five per cent., is attained by using this speciality. Messrs. Tuck will be happy to send samples and further particulars to any of our readers who may be interested in the subject.

Emanating from the same source, also comes a new form of metallic packing, under the title of "Silver Thread," which is eminently suitable for high-speed engines making 600 to 700 revolutions per minute, and using steam up to, say, 180 lbs. pressure.



ENGINEERING SECTION.

ITEMS.

Mr. T. Roles, City Electrical Engineer, of Bradford, recently submitted a report to the Electricity Committee of the Corporation of that city, which is illustrative of some aspects of the supply of current for power purposes. So long ago as 1899 electricity was municipally supplied to users of electric motors at 1d. per unit, an extremely low rate, and one which naturally attracted the attention of manufacturers, so much so that, although at first the results were commercially satisfactory to the municipality, yet subsequently the capacity of the plant became exceeded, and an additional plant had to be installed. For this the increased capital charges rendered it necessary to increase the cost of the unit in 1904 to 1½d., since which date it is curious to learn that the demand has remained stationary, and the average size of the motors has lessened. From this it may be deduced that the larger power users have found the slight increase brought the cost of the municipal supply above that of current produced from private plants or from gas engines. The short-hour consumers, on the other hand, are increasing.

* * * *

The chief point to notice in the present condition of affairs is that the maximum price at which motive power can be satisfactorily charged is 1d. per unit. Although a private plant, continuously used, can generate electricity at a less figure, yet the convenience, space occupied, capital set free, and other advantages of a municipal supply outweigh the slight economy. To occasional users electrical power from the mains can be profitably employed at a much higher price, and it is now proposed to form a sliding scale, under which continuous consumers can obtain a supply at ¾d. per unit, and the intermittent at a maximum of 2d. per unit. Lower charges are already in use in Manchester and Newcastle, and such attenuated prices can safely be quoted where there is a uniform demand and a large modern generating station.

* * * *

The anticipated strike of tramway employes in Dublin has luckily been averted, probably owing to the thoughtfully worded statement of the directors, which was issued at the last moment. In these days of keen competition and depressed trade, a strike is a dangerous weapon, and more often than not proves to be two-edged. The vapourings of the organiser certainly conveyed but little as to the merits of the dispute to the ordinary public, and ultimately appears to have been treated at its due value by the servants of the company, who have gained no little sympathy from the Dublin citizens by staying at their post of duty in the most busy week of the year, when Dublin is crowded with visitors from all parts. All fear of strike being for some time averted, the directors have met the men's loyalty in a proper spirit, and have awarded them a bonus of a week's pay; and it is to be hoped that the employers and employed will eventually be able to adjust their differences without the assistance of the "organiser." This type of individual appears to be on the increase, the organising of a strike gaining, amongst other things, a passing notoriety, and an immunity from the law, at the hands of which his dupes so often—at his advice—suffer.

* * * *

Germany, like Ireland, has vast fields of peat which lie practically untouched, a valuable national asset, if they could be economically converted into a suitable fuel. In the former country the use of peat for fuel is steadily declining, owing to the troublesome process of drying out after cutting, and to the increasing facilities with which coal can be obtained. But once more we have the ever recedent boom, and a certain German professor proposes to utilise peat by converting it into gas, and as water is a principal ingredient in modern gas manufacture, the necessity for preliminary drying is obviated. The result of the preliminary experiments has induced a colleague to improve on the first type of generator, and some tests were made in England, by which sawdust and peat containing half its weight of water was turned into gas suitable for commercial purposes. It is stated that from 2,200 lbs. of turf as cut, about 87,000 cubic feet of gas can be developed, capable of developing 600 horse-power when used through the medium of a gas engine, a result equal to that obtained from about 464 units of electricity. With the scant information to hand, it is difficult to prophesy whether the new scheme for converting peat into a more marketable commodity will meet with more success than so many others,

which have been revolutionary in theory, but short-lived in practice. However, having regard to the fact that most experiments have been conducted with a view to the more economical and effective drying of peat, it is possible that thoughts turned towards the evolution of a process in which the water may be treated as a matter to be disregarded, or rather as an assistance, will in the end prove successful. To this country the utilisation of peat is a very important economic problem, although it is feared that even the methods which are at present commercially successful in Germany and Sweden are not developed to the fullest extent in Ireland. Sporadic efforts are made from time to time to establish a large and flourishing industry, but from lack of capital, and possibly from apathy, the majority soon flicker and die.

* * * *

Mr. W. J. Robinson has recently submitted a report to the Corporation of Londonderry dealing at length with several subjects of major importance, but which, like many similar matters elsewhere, have for some time remained *sub judice*. Possibly the most interesting section of the report is that dealing with the filtration of the city water and the care of the reservoirs, for the efficiency and purity of the water supply is the leading factor in the health of the inhabitants. The Creggan water should necessarily be filtered, but a difference of opinion exists as to the efficacy of the sand filter. Mr. Robinson pins his faith on the provision of mechanical filters, amongst the most valuable of which he places the well-known Candy filter. For this apparatus the following advantages are claimed:—Low capital outlay, combined with low working expenses, as compared with other systems; high chemical and bacteriological purity of the filtered water, proved by a long series of tests, by which it was found that the water was clearer and better than that which has slowly passed through the best sand beds; the small quantity of water required for washing purposes; the filters can be placed directly on trunk mains, and loss of head or fall avoided, and the cost of pumping possibly saved, and no coagulants have to be resorted to either to effect chemical purification or to arrest the bacteria. Added to these advantages is the all-important one that the filters are under direct control and simple to operate, all that is needed for cleansing or working being the occasional turning off and on of the valves. The Local Government Board in England has already sanctioned loans for Candy installations—sure evidence that such are well past the experimental stage. It appears that the requirements of the water service would be met by the installation of three filters, each of eight feet three inches in diameter, and capable of passing a total of 720,000 gallons per day. Mr. Robinson, however, reports that four filters should be installed, which, with the cost of housing and piping, would amount to about £1,700. As opposed to this sum, it is anticipated that sand filters for each reservoir would cost at least £4,000. While the works proposed and the proper detection of waste might not entirely solve all difficulties connected with the water service, they would undoubtedly do much, in an economical manner, to improve its quality and efficiency.

* * * *

In addition to the foregoing recommendations, Mr. Robinson states his experiences of the annual meeting of the Municipal and County Engineers' Association, more particularly in regard to the discussions which took place as to the formation and maintenance of roads to meet present-day requirements. The old method of animal haulage is being superseded to an ever-increasing extent by self-propelled vehicles, and a strong demand has arisen for no dust in summer, no mud in winter, no noise under traffic, and a surface suitable for high speeds. The demand is somewhat Utopian for this matter-of-fact world, but it is continually voiced. Mr. Robinson indicates that he is a convert to the use of tar for forming a coherent surface, as it can be obtained cheaply from the gas works, and has been successfully adopted by many engineers in Great Britain. Incidentally the unreasonableness of the Derry citizens is dealt with, as it appears that they have a prejudice against the use of hydrants for street watering, on the ground that it militates against an efficient water supply. Owing to the macadam surfaces not being kept thoroughly softened in hot weather, they rapidly disintegrate, and the streets cannot be kept in proper condition by means of water carted from the river water pumps. The largest quantity of water required in time of drought does not exceed 16,000 gallons per day, whereas some quarter of a million gallons per day

are sold for various purposes at a charge of 3½d. per 1,000 gallons. The pumping and carting, on the most favourable basis that it can be at present performed, costs two shillings per 1,000 gallons, and Mr. Robinson points out that not only will the dust nuisance be diminished and the road surfaces maintained in better order, but there will be a considerable direct monetary saving by using the town hydrants for a proportion of the street watering. The report is a most interesting and creditable document—one which should prove instructive to engineers holding similar positions elsewhere.

* * * *

Whilst on the subject of water supply, one naturally asks what really is the actual consumption of water per head per day in the average household provided with a bath and the usual sanitary conveniences. Some authorities quote twenty gallons, and the average supply given by the London water companies is thirty-seven gallons, but this includes a supply for municipal and trade purposes. In a group of cottages of eighty-two inmates it has been found that only seven-and-a-half gallons per head were consumed, but in this case no general baths were used, which, of the smallest size, requires thirty-eight gallons, while the average bath contains from fifty to sixty gallons. Possibly, under ordinary conditions, a supply of twenty-five gallons per head will meet the daily demand per head, and this is borne out by the experiment of an engineer who fixed a water meter on the service main of his house, in which there were six occupants, including two children, washing being sent to a laundry. Over a period of twenty-eight days it was found that the consumption averaged twenty-three gallons per head. Allowing for waste and slight leakage, a provision of thirty gallons per head should be sufficient for modern requirements, exclusive of trade purposes, and any considerable excess over such consumption should be proof to the engineer that something is decidedly wrong.



MARCONI WIRELESS TELEGRAPHY DEVELOPMENTS IN IRELAND.

Signor Marconi arrived at Liverpool on Saturday week on the Allan Line turbine steamer "Victorian" from Canada, where he went about five weeks ago in connection with the perfecting of his system of wireless telegraphy.

In the course of an interview, the distinguished inventor expressed himself as in every way satisfied with the result of his work. A great deal had recently been done, he said, in the direction of shore-to-shore communication. There was now no difficulty in regard to ship-to-ship communication at sea, the installations being in every way satisfactory. "A new station has been erected at Clifden, Galway, on the coast of Ireland, and it is with this that I have been making tests. These have been very successful, and we are now able to send messages across the Atlantic, from England to Canada. My object now is to adjust certain apparatus on this side so as to enable us to get messages from Canada to England. The Irish station is a much more powerful and up-to-date one than that at Poldhu, in Cornwall, and this would be in continuous communication with Cape Breton. By the construction of the Irish station the difficulties which had up to the present been encountered in sending messages from Cornwall had been overcome, but in about three weeks' time I am going out to Canada again to put the finishing touches to this work. Both stations will, of course, be of immense service, but the Clifden station is the more powerful and better equipped. When the whole of my tests are complete, then communication from Canada to Great Britain and *vice versa* will be an accomplished fact."

Signor Marconi added that he thought he was now quite prepared to place the system on a commercial basis—the object aimed at by all inventors.

Asked as to whether he thought the public use of wireless telegraphy was as great as was anticipated, Signor Marconi said he certainly thought that was so. On board a liner fitted with the necessary installation, there was always an eagerness on the part of passengers to avail themselves of the system in times of fog, and he remarked on the large number of messages sent to and from the "Victorian," which was delayed by fog just before reaching Liverpool.



Mr. James Quigley, Clones, has been elected County Surveyor of Meath. The position carries with it an initial salary of £600 a year. There were nine candidates for the position. Mr. Quigley was formerly Assistant County Surveyor in County Monaghan.

CLONGOWES WOOD NEW CHURCH. American Cement Blocks.

At a meeting of the Council of the Dublin Industrial Development Association, Mr. J. O'Connor commented on the number of tradesmen thrown out of employment by the introduction of concrete blocks, and said the following correspondence will go to prove a danger to the limestone industry from the same source. The attempt at imitation proves the estimation in which limestone has been held in the past centuries.

"Stonecutters' Union of Ireland, Tullamore Branch,
"July 30th, 1907.

"President, Clongowes Wood College—

"I am directed by this branch of the Stonecutters' Union of Ireland to respectfully approach you regarding the material proposed to be used in the building of the new church, Clongowes Wood. We are informed that a composition of American cement and gravel is to be substituted for Irish limestone. The limestone trade is at present in a very depressed state. This is the first time we have ever known limestone to be rejected for church work. Its durability cannot be questioned. We trust you will kindly reconsider the conditions, and not be the first to introduce what we may call shoddy work to the detriment of a stone that has been used in ecclesiastical buildings for centuries, and has been admired by the best and most competent judges in all times. We may also point out that if your new church is built out of this foreign composition, others will follow, with the result that the once prosperous and beautiful limestone trade will be wiped out, and the tradesmen forced to swell the ranks of the already over-crowded emigrant ships. Trusting that you will reconsider your decision, I am, rev. dear sir, yours very faithfully

"THOMAS O'CONNOR, Secretary."

"Clongowes Wood College,

"Sallins, 4th August, 1907.

"DEAR SIR,—I have been away from home for some days, and did not get your letter until yesterday. I can quite understand your union's concern at the prospect of cement blocks taking the place of cut stone in future, but I fear from what I have seen in Dublin it is inevitable to a certain extent. In this particular case the idea of cut stone had to be abandoned on account of inadequacy of funds. The blocks were recommended by the architect and contractor, and the contract has been signed a month since. It follows that I am now powerless in the matter.—Believe me, yours faithfully,
"MATTHEW DEVITT, S.J."

"Tullamore, August 7th, 1907.

"Rev. M. Devitt, S.J.

"REV SIR,—I am directed by the men of this Lodge to thank you for reply and information conveyed in your letter. We can hardly believe that a combination of American cement and gravel will to any great extent be used as a substitute for limestone in Ireland. If some Irish material, equal in durability and appearance, was produced at a lesser cost, then we should bow to the inevitable. In the first place, the architect specified Irish limestone, for I know three quarry owners who priced the quantities. It was hardly at his suggestion the change was made; and if it was, what does he know about this combination? What can the builder possibly know about it? Your Community yet may know it to their cost. At a time like this, when the limestone industry is in the most depressed state that it has been in for years, we think that some consideration should be given to the interests of native workmen and material. We are amazed that a section of the noblest Order of the Church should be the first to use inferior foreign imitation in raising an edifice for Divine worship, and we earnestly and respectfully request you will re-consider your decision before any progress has been made with the work.—I am, rev. dear sir, yours very faithfully, THOMAS O'CONNOR."



Messrs. E. H. Shorland and Brother, warming and ventilating engineers, of Manchester, have found from practical experience and observation that where inlet ventilators have been a length of time fixed, the interiors of the ventilators frequently become very dusty, and are practically receptacles for dirt and rubbish. This firm have, therefore, introduced a new ventilator, which they describe as Shorland's No. 221 design, latest patent hygienic inlet ventilating panel. This inlet ventilator is made so that by one movement only the front of the ventilator can be removed, thus allowing for the whole of the interior of the ventilator being cleaned at any time from the inside of the room where the ventilator is fixed. The advantage of this method of cleaning the ventilator will at once be apparent, as by it there is no necessity to go outside the building to remove the air grating in the outer wall for the purpose of cleaning the inside of the ventilator. Further particulars may be had from the patentees.

ENGINEERING NEWS.

Antrim.—The Larne District Council have accepted a tender of £481 for carrying out the proposed sewerage works at Belfast Road, Carrickfergus.

Belfast.—Messrs. J. L. Miller and Wilson, consulting electrical and mechanical engineers, of Liverpool, Manchester, and Scottish Temperance Assurance Buildings, Donegall Square, Belfast, are reporting and advising on the suggested scheme of electrical supply on a large scale in the districts outside Belfast. The scheme proposes to erect one (or more) large power station for the supply of electric energy in bulk at low rates to mills and district authorities.

Mr. George S. Clark, M.P., reported to the Belfast Harbour Commissioners that a very satisfactory report had been made on the work at the Alexandra and New Graving Docks. Messrs. Hawshaw and Dobson, consulting engineers, London, said good progress had been made, notwithstanding the delay of about a fortnight when the plates for the caisson could not be delivered owing to the strike. In the meantime the excavation at the east end of the caisson recess, and other works incidental, were being rapidly carried out. It was thought that operations to complete the cut-off between the two docks would be finished within a month from date. The restoration work of the Alexandra Graving Dock would be completed, and the dock ready for use by the 1st January next.

Dublin.—The Commissioners of National Education invite tenders for the electrical installation at the new residence, Glasnevin, including gas engines, producers, battery, wiring, etc. Plans, specifications, conditions of contract, can be seen at the office of the engineers, Messrs. Tomlinson and Mills, 39 Fleet Street. Tenders close on September 13th.

At the last meeting of the Corporation, Mr. Clancy said it was with the utmost pleasure and gratification that he rose to make a proposition to the Council that they should confer the Freedom of the City on Mr. Spencer Harty, their Borough Surveyor. He was a man, he thought, pre-eminently entitled to that high and distinguished honour, for of all the twenty-two names that were on the list, no one would deny that there was one that had a greater claim on the consideration of the Council and of the citizens than that of Mr. Harty. Since 1861 he had accomplished a great work for Dublin. Out of chaos was evolved a city that they were all proud of. Out of a city of dirt and squalor and filth there had been produced a city that they were not ashamed to have people visiting. Beginning with the Vartry Waterworks, the various great works in which Mr. Harty had been engaged were enumerated. Special mention was made of the re-paving of the city, which was carried out by Mr. Harty by direct labour, and which deprived the city of the popular description of "dear, dirty Dublin," and converted it into a clean city. He (Mr. Clancy) had voted against Mr. Harty at the time he was elected Borough Surveyor, but he was glad now to be able to freely admit that the best man was elected. Mr. Harty was now engaged, and had nearly finished, what would probably be the final work of his lifetime—that was the main drainage of the city, and the opportunity was now afforded to the Council of recognising the pre-eminent services he had rendered to the city. Mr. Harty was endeared to everybody in the city, and was respected all over the country. He hoped the resolution would be received unanimously in a spirit of generosity and approval. The motion was passed unanimously.

Enniskerry.—Tenders are invited for the construction at Enniskerry of house drains to certain houses in the village (complete systems, with fitting sewers), and connecting same with Enniskerry main drainage system, for the Right Hon. Viscount Powerscourt, according to designs of Mr. W. H. James, C.E., Marine Lodge, Dalkey, which can be seen by applying to Mr. A. Chatterton, Estate Office, Enniskerry. Tenders close 12 o'clock September 16th.

Gransha.—The Committee of Management of the Londonderry District Lunatic Asylum have received tenders for the supply, delivery, and erection of 22 K. W. steam set, with brush dynamo, pipework, switchboard, connections, etc., for extension of plant at Gransha Asylum.

Howth.—The sewerage scheme, which has been in contemplation for some years, has just been started. The works include 18-inch cast-iron outfall pipe, septic and storage tanks, and sewers along the Harbour Road, Abbey Street, Main Street, Church Street, and up the Thormanby Road to Cowbooter Lane. Mr. P. H. McCarthy, B.E., 39 Westmoreland Street, Dublin, is the engineer, and Messrs. Martin and Co. the contractors. The contract sum is £6,200.

Lurgan.—The Lurgan Board of Guardians have postponed opening the tenders for the new sewerage scheme for another two weeks.

Newtownbarry.—The *Wexford People* states:—The residents of Newtownbarry and district are about to consider the best means by which a railway to their town may be laid down, and a meeting under the presidency of the Very Rev. Canon Whitty has been summoned.

Portrane.—Tenders will shortly be invited for the extension of the Portrane Asylum Waterworks, providing for erection of filter, clear water tanks, and other works. Mr. F. Bergin, B.E., 36 Westmoreland Street, Dublin, is the engineer.

Queenstown.—The Lord Lieutenant on Tuesday last performed the ceremony of turning the first sod of the new dock to be constructed at Haulbowline, Cork Harbour, at a cost of £110,000. The fleet and the buildings in the town were decorated in honour of the Viceregal visit. The Island of Haulbowline first came into Government hands in 1778, when it was purchased from Lord Inchiquin by the Board of Ordnance, who in 1806 handed over to the Admiralty that portion of the island now used for naval purposes. Last year, therefore, marked the centenary of the establishment of this dockyard. The yard was originally used only for victualling and store purposes, the storehouses having been erected in 1810; but in 1865 the construction of the basin and graving dock was commenced. In 1869 Earl Spencer, then Lord Lieutenant of Ireland, visited the works, and laid a large coping-stone on the West Wall. In 1885 the yard was visited by their Majesties the King and Queen (then Prince and Princess of Wales), and the yard was named, in commemoration of their visit, the Royal Alexandra Yard. The basin and dry dock were constructed mainly by convict labour. The convicts were housed on Spike Island. The whole of the works were finally completed at a cost of about £500,000. In 1887, the Jubilee year of her late Majesty Queen Victoria, the basin, which had an area of nine acres and a depth of 35 feet, was capable of accommodating ships of 600 feet in length, but the dry dock, although of ample width and depth, was only 412 feet in length on the blocks. It was, therefore, to be extended to 600 feet in length, so that when completed, probably in less than three years, it would be capable of taking the largest battleships or cruisers that would lay in the basin—in fact, it would then take an Invincible as regards length, and a Dreadnought as regards width and weight; so that at the comparatively moderate cost of £110,000 the Admiralty would hold in this magnificent harbour a dock which would take the largest ships at present possessed by the British nation.

Terenure.—A loan of £20,000 has been sanctioned by the Local Government Board for the proposed sewage works, and tenders will be invited at an early date. The scheme includes the drainage of the entire Terenure area, including Templeogue and Kimmage. The outfall is through Rathmines and the city, and the sewage will discharge into the Corporation system at Dean Street. Messrs. P. H. McCarthy, B.E., 39 Westmoreland Street, and T. J. Byrnes, Surveyor to the Council, are the joint engineers.

IMPORTS.

Port of Dublin.

August 21—Per S.S. Gothard, from Miramichi, 32,694 pes. deals, ends, and scantlings, Brooks, Thomas and Co., Ltd.

August 22—Per B. A. Bach, from Archangel, 9,674 pes. deals, Robinsons, Ltd.; 27,648 pes. deals, boards, and ends, to order.

August 23—Per Marian, from Bridgwater, 95 tons brick goods, T. and C. Martin, Ltd.; 10 tons brick goods, McMaster, Hodgson and Co. Per Lady Wolsley, from London, 1,500 sacks cement, and 12 kegs lead, T. Dockrell, Son and Co., Ltd.

August 24—Per King's Oak, from Bridgwater, 110 tons bricks, R. Martin and Co.

August 26—Per Dunmore, from Riga, 1,050 cases, 64,220 pes. firwood sawn, 566 pes. timber sawn, to order.

August 28—Per Norna, from Mo., 218,830 pes. flooring boards, R. Martin and Co. Per Ellie Park, from Connah's Quay, 155 tons bricks, T. Archer.

August 29—Per Enterprise, from Swansea, 95 tons bricks, M. Murphy.

August 30—Per Pearl, from Rochester, 190 tons cement, A. Agnew. Per Lady Roberts, from London, 930 sacks cement, R. Martin and Co.

September 2—Per Elsa, from Sundswall, 125,320 pes. planed boards, 52,631 pes. battens.

September 3—Per G. K. C., from Nantes, 116 tons slates, T. Archer. Per Lord Lansdowne, from Baltimore, 1,108 pes. oakwood sawn, 331 pes., 206 bdles. poplar, 895 pes. fir, to order.

NEW ABATTOIR AT BELFAST.

For some years there has been a continuous agitation in Belfast, having for its object the bettering of the public slaughterhouse arrangements. Unquestionably the existing arrangements are of an extremely primitive character, and involve an immense amount of trouble and unsatisfactory results in working. Some few years ago a deputation from the Belfast Council visited a number of Continental abattoirs, and by that means acquired a large amount of valuable information relative to abattoir equipment, which has been since put into the form of a report. The actual carrying out of the recommendations of the deputation has not been very expeditious. A year or so ago it was almost settled that a complete new abattoir should be built, but for some reason or another the proposals were lying up. Last year, however, in the autumn, it was definitely settled that a beginning should be made to the new abattoir by putting modern fittings in some of the existing buildings. The Corporation of Belfast, after consultation with Messrs. Wm. Douglas and Sons, Ltd., of Putney, decided to put up accommodation for the slaughtering of 200 bullocks per day on the most modern principles. The buildings available were each 80 ft. long and 22 ft. and 25 ft. respectively in width, separated by a passage 26 ft. wide, and one of these has been fitted with twenty slaughtering rings, each of which has a working area round about it of about 10 ft. Each of these rings is utilised in connection with Douglas abattoir wall hoists, which are also fitted throughout. These wall hoists are all of extremely

ingenious design, and are self-sustaining. They can be lowered very quickly and stopped instantaneously. Attached to these hoists are iron spreaders, so that with overhead track bars the arrangements inside the abattoirs are very complete. There are also special low bars for the carrying of sheep, and as these are suspended instead of being supported from beneath, greater head room is given. The whole of the floor area of the abattoir is thus adapted for the handling of both cattle and sheep, and is free from any kind of impediment in the shape of columns.

When the animals are slaughtered they are at once conveyed across the passage dividing the two buildings and placed in the cooling house, either on the high track bars for the cattle carcasses or on the lower track bars designed for sheep. The cooling house is fitted up with a complete system of bars and switches, so that the carcasses can be handled quite easily and carried from one point to another without any trouble. When the carcasses have been cooled in the cooling house, they are then ready to be taken to the various shops in Belfast, and are pushed through the various openings in the cooling house on a travelling monkey, a number of which are fitted, so as to command all the various bars. By means of these travelling monkeys the carcasses can be lowered quickly into meat purveyors' carts, and so taken away.

The movement in connection with the providing of modern abattoirs seems to grow considerably, and it is just as well, if such places are to be provided, that they should be fitted up in the complete manner that has been carried out in Belfast.—*Ice and Cold Storage.*

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THE QUEBEC BRIDGE DISASTER.

It is many years since the engineering world received such a shock as was caused by the news of the collapse of a large section of the new cantilever bridge over the River St. Lawrence. It was only in our last issue that we were enabled to give some particulars of the huge structure, which at the time was progressing rapidly, and with every prospect of a satisfactory completion. But on Friday last, whilst the steel trusses were alive with men rivetting the various members in position, and gradually stretching the giant arm across the water-way, a freight train, loaded with materials, passed on to the bridge, and in a moment the work of months collapsed into a mass of twisted metal. Unfortunately involving seventy-five lives in the catastrophe. The accounts so far to hand are meagre, and, until an inquiry into the direct cause has been held, it is, perhaps, idle to attempt to calculate the cause. But reports would lead to the belief that the train travelled too far on to the bridge, and before it could be pulled up had passed the main pier and reached a point on the cantilever beyond the resistance of the anchor stays on the land side. The pier acted as a fulcrum, the huge arm, destined eventually to be connected with a similar arm from the opposite shore, became a lever, and the stays, having parted from their anchorage, the structure overbalanced, and the centre of gravity being disturbed, it collapsed. Such an accident may in no way be attributable to faulty design, but possibly to an error of judgment on the part of men employed. It is, however, no time to apportion blame, but rather to extend a generous sympathy to all concerned in the undertaking, a sympathy which His Majesty has hastened to express. Especially must we feel for those who so suddenly have been bereft of their bread-winners, who died at the post of duty.

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QUEEN'S COLLEGE, GALWAY.

SESSION 1907-1908.

DEPARTMENT OF ENGINEERING.

MATRICULATION EXAMINATION,

18th OCTOBER, 1907.

The Matriculation Certificates of the Queen's Colleges Belfast and Cork, and of the Royal University of Ireland, and of other Universities within the United Kingdom, are accepted by this College.

All Lectures, Scholarships, Exhibitions, and Prizes are open to Women.

JUNIOR SCHOLARSHIPS.

First Year—Two, value £20 each. Second Year—Two, value £20 each. Third Year—One, value £20.

The Examinations for Scholarships of the First Year will commence on the 23rd October, of the Second Year on the 18th October, of the Third Year on the 21st October.

EXHIBITIONS.

The Council may award Exhibitions to Students at the Examinations for Junior Scholarships.

Scholarships and Exhibitions are tenable for One Year, and Candidates must have Matriculated.

Lectures can be attended by both Matriculated and non-Matriculated Students, and all Lectures, Scholarships, Exhibitions, and Prizes are open to Women.

Information as to Fees, and Copies of the Prospectus may be had on application to the Registrar.

By order of the President,

EDWARD TOWNSEND,

1st August, 1907.

Registrar.

CONTRACTS.**TO ENGINEERS, ETC.****MULLINGAR RURAL DISTRICT COUNCIL.**

The Mullingar Rural District Council invite the submission of plans, estimates, and specifications for a main drainage system for the town of Mullingar, and are prepared to award a premium of FIFTY POUNDS for the best and most suitable sent in.

Copy of the conditions of the competition and instructions to competitors can be obtained on application, by letter, to the undersigned Clerk of the District Council, to whom the plans and estimates are to be sent in not later than September 18th.

Suitable professional assistance will be obtained by the Council to advise them in the making of the award.

LAURENCE GAVIN,

Clerk of Mullingar Rural District Council.

COUNTY COUNCIL, TIPPERARY, N.R.**TO MANUFACTURERS OF ROAD-MAKING
MACHINERY.**

The above Council invite tenders from competent manufacturers for all or any of the undermentioned machinery:—

2 Steam road rollers, about 12½ tons weight, with compound engines.

2 Sleeping vans, accommodation for 3 men, complete, including bedding.

4 Water carts, about 200 gallons capacity each, with draw hose and hand pump complete.

Full specifications of the above articles can be inspected at the offices of the above Council in Nenagh, and tenders shall be for goods in accordance with such specifications, or with such variations therefrom as the County Surveyor, with the consent (if required) of the Local Government Board, shall approve of; and in the event of the articles tendered for not being in strict accordance with the deposited specification, full specification, including descriptive drawings, must be lodged with the County Surveyor at the time when tenders are lodged. Such specifications and drawings (if necessary), and all tenders, to be lodged in the office of the undersigned not later than 10 o'clock a.m. on Saturday, 21st day of September, 1907.

Tenders to be in separate envelopes from any other documents lodged, and to be sealed and endorsed so as to indicate the article or articles tendered for.

The Council shall not be bound to accept the lowest or any tender, and all articles are to be quoted "Delivered free and in perfect working order and condition at the Courthouse Yard, Nenagh, Co. Tipperary."

(By Order),

R. E. BAYLY,

Sec. North Tipperary Co. Council.

Courthouse, Nenagh, 29th Aug., 1907.

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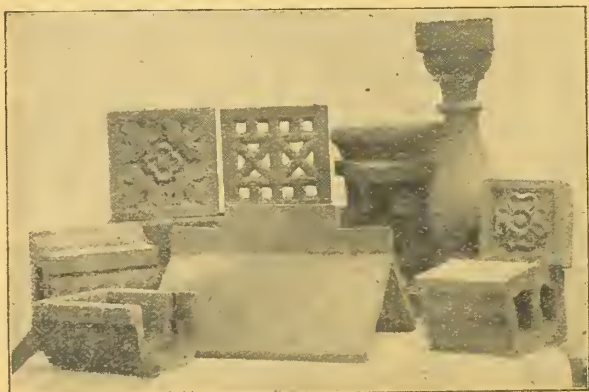
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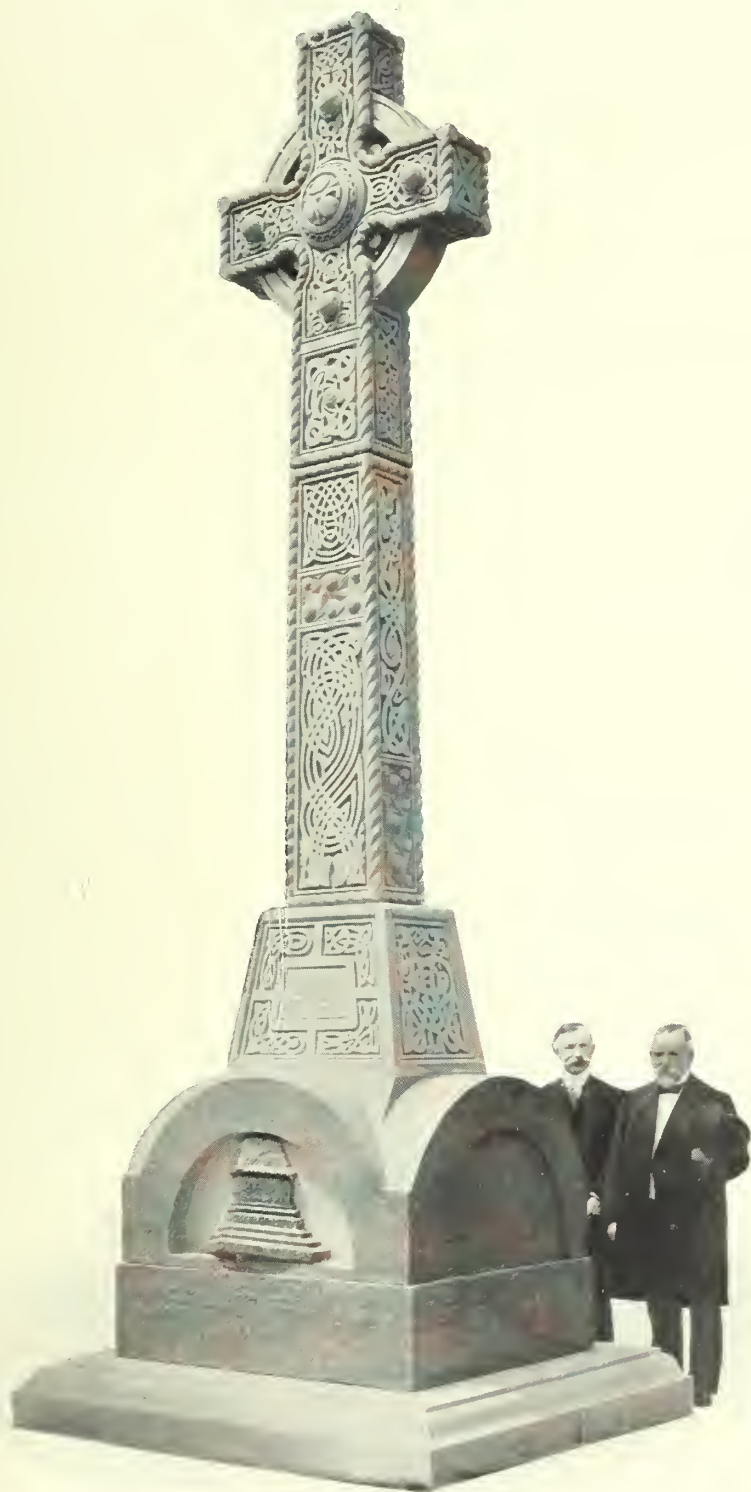
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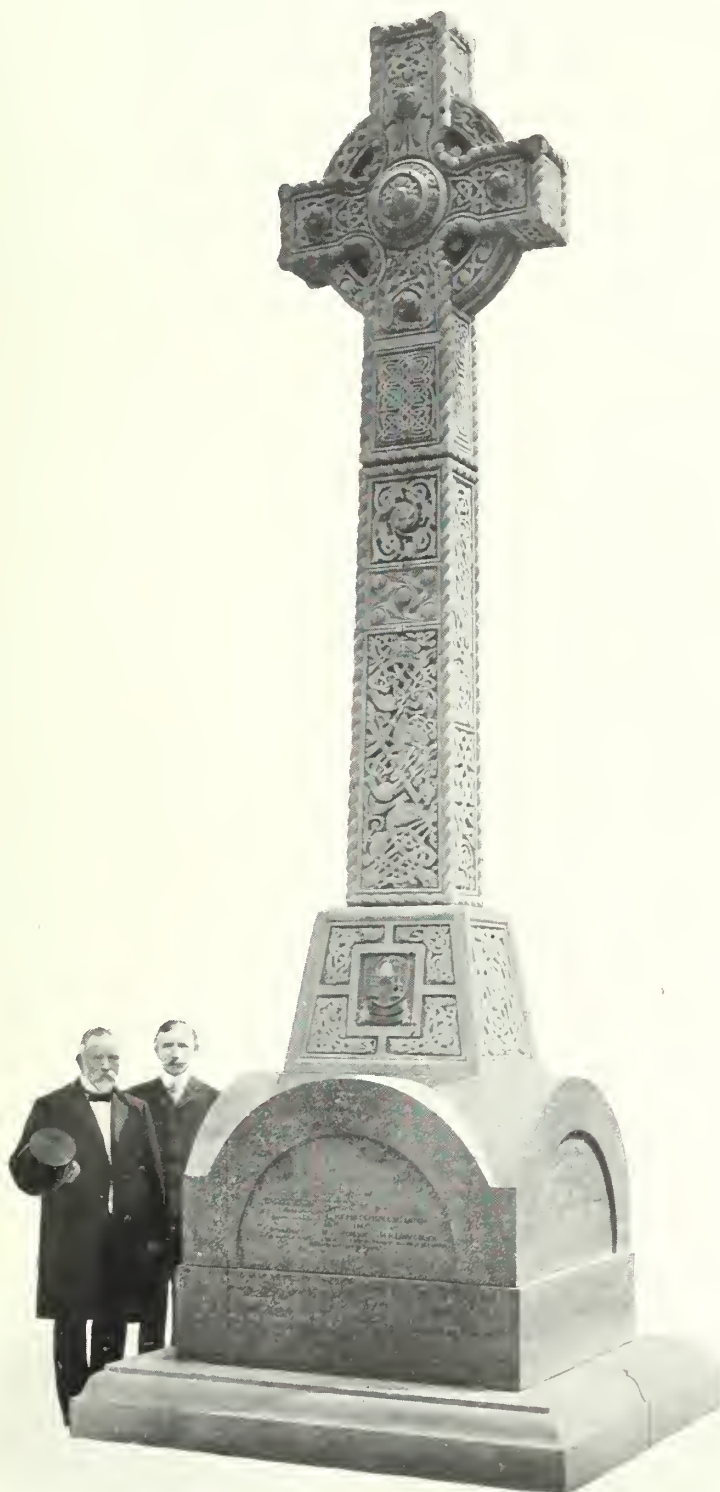
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Unveiled, Sunday, 25th August, 1907.

Front Elevation.

Mr. Anthony Scott M.S.A., Dublin, Architect.

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Back Elevation.

Mr. Anthony Scott M.S.A., Dublin, Architect.

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A JOURNAL DEVOTED TO

ARCHITECTURE, ARCHÆOLOGY, ENGINEERING, SANITATION,
ARTS AND HANDICRAFTS.

Every Second Saturday.

[Estab. Jan. 1859.]

No. 19—Vol. XLIX.

HEAD OFFICE

September 21, 1907.

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TOPICAL TOUCHES.

The parish church of Listowel, Co. Kerry, is to be practically rebuilt from the designs of Messrs. Ashlin and Coleman, Mr. D. W. Morris, of Dublin, being the surveyor.

* * * *

It is reported in the American papers that the widow of Stanford White, the well-known New York architect, whose murder by Harry Thaw caused such sensation, is shortly to be married to one of White's partners in the firm of McKim, Meade and White.

* * * *

A couple of weeks ago we saw, with regret, in the English papers a notice of the death of a certain fairly well-known provincial architect in the workhouse of his native town. Following quickly on that event was published the news of the death of Mr. John Robert Boyle, a very well-known antiquary, in Hull Workhouse. The latter unfortunate individual had, however, been detected in certain thefts and frauds, the exposure which followed probably accounting for his downfall.

* * * *

The Tullamore Stonecutters' Trades Union have made a strong protest against the use of cast concrete blocks instead of cut stone in the new chapel of the Jesuit College at Clongowes Wood. Similarly, the Cork stonecutters protest against the use of Castletwellan granite for the new church at Castletown-Berehaven. The protest against the concrete blocks has raised a spirited controversy in the daily Press, upon which we elsewhere venture to offer some observations.

* * * *

The great New York skyscraper, the Singer building, is rising towards its ultimate forty-three storeys at the rate of one storey a week. The building, when finished, will be the world's record in skyscrapers. As fast as each floor is completed it is occupied, and the building already houses over a thousand firms. Prince Wilhelm of Sweden, whose recent visit to the States set all New York throbbing with excitement, climbed to the top scaffold of this record skyscraper. When completed, the Singer building will be 200 feet higher than the dome of St. Paul's.

* * * *

The harbours and piers erected by the Board of Works around the Irish coast are notable for their failure to accomplish the objects aimed at. Many lie high and dry, and, in some instances, are the driest spots in the locality; others can only be approached at high tide; others, again, have acted as groins, and have caused the sand to silt up, raising the beach level considerably; while yet others again have been built upon insufficient foundations, and are crumbling away. Howth Harbour is probably one of the worst examples—true, it stands as firm to-day as when it was built, but is practically useless. It covers an area of fifty-two acres, and the entrance between the piers is 320 feet in width; the two piers extend together over a mile. The harbour cost £300,000 to build, and is said to be practically useless. Some experts have offered the opinion that had it been placed a little further to the east, it would now be a safe and useful harbour, capable of accommodating vessels of large tonnage. In these days of keen competition for the cross-Channel carrying trade and high port dues, it seems a pity that Howth Harbour should not be utilised for passenger and trade purposes, and become once again a packet station.

On Friday last the new Central Fire Brigade Station of the Dublin Corporation in Great Brunswick Street was opened. Elsewhere we give some particulars of the work.

* * * *

The London County Council have decided to surmount the buttresses of Vauxhall Bridge with large symbolical statues in pottery. These statues being on the outside face of the bridge, can, unhappily, only be properly seen by those passing up and down the river in vessels. The fact that the figures will be of pottery is a wise decision, as in the London atmosphere stone and marble become very discoloured, and extremely difficult to clean.

* * * *

The import of goods into the United Kingdom, and also exportation, both show continued increase. While the imports for the month of August last show an increase of something over half a million sterling, as compared with the corresponding month last year, the exports for the same period have risen by about four millions sterling. The imports still continue to show a great excess over exports.

* * * *

Some light was thrown upon the vexed question of cost of labourers' cottages in Ireland at an inquiry held at Navan last week by Mr. R. J. Pack-Beresford, L.G.B. Inspector. Mr. Anthony Scott, M.S.A., the architect, gave evidence as to the cost of the cottages as follows:—Building, £146; sites, £40 each (per acre); legal, engineering and other expenses, £14 2s.; total, £201 3s., which, having regard to the cost of building and the accommodation afforded, one would assume should be regarded as a reasonable figure. The Inspector, however, intimated that the Board wanted the total cost reduced to £180. Mr. Scott said that the estimate could be reduced to £180, but to reduce the accommodation from four to three rooms would be a retrograde movement, to which he believed the District Council would not willingly consent.

* * * *

Most people are aware that Thomas Hardy, the novelist, began life as an architect, but comparatively few know that that much "boomed" author, Mr. Hall Caine, similarly started his career. Educated at schools in the Isle of Man and Liverpool, he was subsequently apprenticed to an architect, whose name we know not. Later he became a writer of architectural articles for "The Builder" and other technical journals. Eventually, forsaking the walks of technical journalism, he joined the staff of the "Liverpool Mercury" as a leader writer. The late D. G. Rossetti, the artist and poet, brought him to London, and with Rossetti he resided until the death of the latter in 1882. During the earlier days of his career in London, Hall Caine was a frequent contributor to the "Academy" and the "Athenæum." There must be something in the atmosphere of building that conduces to literary effort, so many men—from Sir John Vanburgh, the architect of Blenheim Palace, down to Hall Caine, W. J. Locke, the secretary of the Institute, and, above all, Thomas Hardy, as well as many others, have either forsaken architecture for literature, or else dealt in the latter as amateurs. In our own city it is not generally known Mr. James Franklyn Fuller, the architect, is a writer of no small merit, and, under a *nom-de-plume*, has achieved a substantial measure of success as a novelist, his best-known works being "John Orlebar," "Culmshire Folk," and "The Young Idea."

SCHOOL HYGIENE.

Buildings and their Equipment.

Mr. Thomas E. Collcutt, President R.I.B.A., presided over the section, "The School Building and its Equipment," at the International Congress on School Hygiene, held at the London University from the 5th to the 10th ult. The following is an extract from his address delivered at the opening of the sitting:—

In designing school buildings, the architect is generally obliged to limit his expenditure, so that there are seldom opportunities for much ornament or display. This in itself is not a disadvantage. There is no necessity for elaboration of design, but fine architecture is always desirable, and is quite possible without rich and expensive detail. In every school building, however simple in general construction, there should be at least one feature of architectural worth. Should this be a fine doorway or any other detail, let it be good enough to be a source of pride to the school. An important factor in education is the development of that appreciation of beauty in art or nature which is latent in most of us. If school teachers can learn to be proud of some part or feature of their building they will be able probably to inculcate some such feeling in their scholars. I believe that a sense of admiration for the handicraft of others leads to emulation of the right kind, and a fine example in stone or woodwork may prove of great educational value to our budding craftsmen.

Another point on which I should like to touch is the finishing of the walls in class-rooms, etc. With all deference to sanitary and hygienic opinion, I feel I must protest very strongly against the use of glazed surfaces in schools and class-rooms. Perfect as glazed tiles are in every way when used in legitimate positions for lining lavatories, cloak-rooms, etc., they are inappropriate and unsightly as wall decoration for living rooms. My own experience in a certain room lined with faience has been that of discomfort and irritation. Being, as you will allow, something of an expert where domestic architecture is concerned, I was able to trace the cause of my discomfort to the glaze of faience. Surely children, without knowing whence the depressing influence arose, might be quite as much affected by it. Too much stress cannot be laid upon the importance of having warm and pleasant colouring upon the walls; the cold and drab colours which are so much used should be avoided. In London and large towns there is too much that is dismal and smoke-defiled outside, and the interiors should be cheerful. Children's eyes wander even when their attention is supposed to be engaged, and they should surely have something pleasant to look upon. Their school-rooms, in fact, ought to be such rooms as we would not mind occupying ourselves. To illustrate my point let me draw attention to the Doss-house in Parker Street, which I saw after it had been occupied for two years. This building is a common lodging-house for the poorest classes, the charge being 5d. a night for a bed. The common-room is decorated in a way that might by many be considered inappropriate to the class of persons by whom it is used, but I consider that the money spent on beautifying it has not by any means been thrown away. The whole of one end of the room is occupied by a carefully designed fireplace surmounted by a mural picture. The woodwork of the walls and of the fixed seats is of equal merit with the other work, and is painted in rich and pleasant green. This sort of decoration, without being expensive, is highly effective. When you consider the exceedingly low charge for a bed, and for the use of this room, you will realise that the Doss-house is occupied by the poorest of the poor. The casual occupant may be anyone, from the young hooligan to the most hardened vagrant, and yet after two years' continual use I saw absolutely no sign of rough treatment. The painted woodwork and the walls were all in as good condition as if the room had been dwelt in by educated people. Any signs of wear visible were certainly not caused by malice, or even carelessness. It seems to me that the fact of this respect shown to a good building proves that even the minds of the very poorest may be accessible to feelings of beauty. If adults of the degraded though not criminal classes are sensitive to the influence of beauty, how much more must this be the case with the plastic mind of childhood.

There is nothing more necessary to the well-being of children than good ventilation. Of all the systems at present in use, some of which are certainly excellent, not one can be said to approach perfection. In forthcoming papers you may hear many methods strongly advocated, but I venture to assert that, whatever may be the virtues of such systems, all will leave something to be desired. Architects agree that open fireplaces and open windows are essential supplements to any other kind of ventilation. All

who have to do with children know that they thrive best in the open air. Doctors insist on open air for anaemia and chest diseases and for minimising the risk of any sort of infection, and no system of ventilation has yet been discovered to supersede the open-air treatment for consumptives. If prevention is better than cure, it behoves us to see that the children of the nation are taught as much as possible in fresh air. As a matter of example, it is desirable that children see that frequent changing of the atmosphere is insisted on in the class-room. No patent system of ventilation will teach them the valuable lesson that they may learn by seeing the importance of having the windows open. As well teach them to cook by electricity, and then let them go back to their own cheap stoves, as expect them to learn the rudimentary hygienic truth that fresh air is essential in a class-room where the windows are all kept shut.

Lighting and Ventilation of Class-rooms.

Sir Aston Webb, R.A., opened the set discussion on this subject at the International Congress on School Hygiene, and delivered the following address:—

I am afraid there is nothing new that can be written on this subject, and I make no claim to any originality in these remarks, merely recording my own experience and what I believe to be the present practice in England. The reason, I presume, that led to this subject being selected for discussion at this Congress is the importance of the class-room as that section of the school building in which the scholastic portion of the teaching is carried on. Here the scholars spend practically all their school hours, and here their mental powers are put to the greatest strain, so that it is desirable that everything possible should be done to place them under the best physical conditions. The size of class-rooms is obviously closely related to the subject of lighting, and is necessarily regulated by the size of the classes. These vary from the fifty or sixty scholars or more allowed in a public elementary school to the fifteen to thirty in a secondary school. The size is also regulated by the seating arrangements adopted, single seats taking more space than dual, the width of gangways and master's platform being also factors in the case. The purpose to which a class-room is put will also necessarily affect its size, but I am assuming that the class-rooms at present under discussion are the ordinary ones in which general subjects are taken.

The Board of Education lay down an average of not less than ten square feet of floor space for each scholar in public elementary schools, and in this country this is generally adhered to; while in secondary schools, where single desks are used, a floor area of from seventeen to eighteen square feet is required, though, under certain circumstances, a minimum allowance of sixteen square feet will now be accepted by the Board of Education. Given, therefore, the number of scholars to be provided, the above requirements fix the floor area of the class-room; but there still remains the comparative length, breadth, and height to be determined, matters on which the effective lighting and ventilation must largely depend. The breadth and length are, to some extent, governed by the type of seat employed, but the nearer a room approaches a square the better, with the limitation that a room can hardly be satisfactorily lighted if more than twenty-four feet wide, while twenty-two feet is better.

We will assume that the room is lit, as it should be, from one side only, which at once limits the depth from twenty to twenty-four feet; the length will then depend upon the number to be seated. The height of the room is also an important factor in the lighting, as the deeper the room the higher it should be, if the seats furthest from the window are to be properly lighted. For the purposes of acoustics and ventilation, twelve feet is generally a sufficient height, though, if a large number are to be accommodated, thirteen to fourteen feet in height may be necessary. These regulations work out for a class-room in a secondary school for twenty-five scholars at twenty-three feet six inches by nineteen feet by twelve feet high. Having settled the size of the class-room, the question of lighting has to be considered more in detail. It seems hardly necessary to mention that it should be lighted from the left hand of the scholar only. The size of glass area to be provided is more difficult to lay down. This will be affected by two considerations—the aspect and the situation. To take the latter first, it is obvious that a town school in a crowded part would not obtain so much light from a window of a given area with buildings opposite as a building situated in the open country with an unobstructed prospect. The same applies in some degree to the aspect, windows quite satisfactory for a northern aspect being unsuitable for a southern one. Class-rooms should be so placed that they

have sun in them during part of the day, but not always; north, west, and south-west, if unprotected, should be avoided. The Board of Education lay down one-fifth as the approximate area of window glass to the floor area to light a class-room satisfactorily. In very confined sites, however, one quarter is sometimes found necessary, and in open and exposed sites one-sixth will sometimes suffice. Anything beyond the amount of glass actually necessary to give a satisfactory light is undesirable, as it tends to make the room cold in winter and hot in summer, and adds considerably to the difficulty of the effective treatment of the room, both externally and internally. The glass line should not be more than four feet above the floor, with the heads of the windows carried up as near the ceiling as possible.

The windows should be so arranged in the wall that all the seats are equally well lighted. This is apt to leave the master's desk somewhat under-lighted, and in order to rectify this Mr. Bell and I provided in the class-rooms at Christ's Hospital a small window to light the master's desk, kept low down so that he can also see out of it, and I believe this has been appreciated. Under no circumstances should there be windows facing the scholars, and windows in the opposite wall facing the master are almost equally objectionable. Mullions, transoms, and window bars are, in my opinion, unobjectionable if the glass area is calculated independently of them. Plain sheet or plate-glass is the best for glazing, and the view of the sky should not be shut out from the scholars. Glazed brick or tiled walls, except as dados, are not suitable for class-rooms of the character we are considering; the reflected light is trying to the eyes, and being non-porous they are not considered hygienic for crowded rooms. A white plaster ceiling is the best, with light green or grey walls according to aspect, the woodwork painted white or, better, left its natural colour. A glare in a class-room is to be as carefully avoided as gloom. The artificial light of class-rooms, perhaps, hardly comes under consideration to-day, but it is of equal importance when much evening work is done. Carefully regulated incandescent electric lighting is the best, and greatly simplifies ventilation. Gas is better avoided. Perhaps the best illuminant is composed of inverted arc lights with the room lit by reflection from the ceiling, but it is extravagant in current. Single incandescent lamps equally distributed over the ceiling give a pleasant and well-diffused light. Groups of lamps in electroliers should be avoided in class-rooms. One eight-candle lamp, if not hung too high, should light sufficiently twenty-four feet super. of floor area.

For the ventilation of class-rooms it is more difficult to lay down any definite rules. The problem may be simply stated as follows:—

The time required to contaminate the air in a class-room of an elementary school of the capacity required per scholar—i.e., ten feet per scholar—is eight minutes, while for that of a secondary school it would be a quarter of an hour. The temperature of the room, according to the rules of the Board of Education, has to be kept at from fifty-six degrees to sixty degrees Fahr. The problem, therefore, is how to change the air of a class-room from four to eight times an hour, and, at the same time, to avoid draughts and keep the temperature at from fifty-six to sixty degrees. In discussing ventilation it is not possible to exclude altogether the question of heating. This can be done by open fireplaces, hot water, or steam and warm air. In one set of competition conditions sent to me I was surprised to find a condition, drawn up by an eminent architect, stating that the top of the fireplace openings should be four feet six inches high above the floor. I subsequently learned that this was provided on the strength of an instance where it appears such openings were provided, and it was noticed the boys did not progress so well after they had grown above this height, the idea being that the air in the room was better at the lower level through the ventilation of the fireplace. Whether this was a fact I cannot say, but the regulation was not insisted upon when the building came to be erected.

Still there is, I think, undoubtedly in England a strong preference for the open fireplace and the open window, and no doubt there is much to be said for them, especially in small schools; in larger ones it is impracticable. At the same time, I am strongly of opinion that an elaborate system of heating and ventilation, such as may be very necessary in such buildings as law courts or hospitals, is not necessary in a school for healthy boys and girls. The open fireplace not only provides heat, but also a means of ventilation, and should be placed in the angle on the inner wall near the door, not on the window side, which is an outside wall, and which in such a position must place the unhappy master in a draught between the door and the fireplace. An extract can be obtained by another flue in the chimney-stack, and fresh air may be admitted at the back of the grate and from the corridor. By this means, however, it is impossible to insure with any certainty a regular change

of air in the class-room or an even temperature. All extracts which are worked by what are called natural causes are, in my opinion, unreliable, and under certain variable conditions of temperature or wind pressure, work uncertainly and sometimes even in directly opposite directions to that intended. To obtain results unaffected by these variations, mechanical means must be employed in the shape of rotary fans or other contrivances to move the air by either extraction or propulsion. If extraction is adopted, probably the best plan is hot-water radiators under the windows, fitted with bafflers, behind which the fresh air admitted from outside is warmed by passing over the radiators and the foul air is mechanically extracted at the ceiling level in the wall opposite. By this means, and with regulators on the inlets and outlets, the system can be sufficiently regulated, but it is as well also to supply an open fireplace, though the mechanical extract may interfere with its draught at times. The size of both the inlet and outlet depends upon the power of the fan employed. The alternative is the propulsion of warm air into the room by a fan, the air being admitted into the room about two feet below the ceiling, the outlet being at the floor level into the corridor immediately below the inlet over. The advantages of this system are the more equal distribution of the heat throughout the room, the absence of all heating apparatus, such as radiators, in the room, the avoidance of draught, the air in the room being under slight pressure, and the ease with which the apparatus can be used for ventilation purposes in summer time. The system requires to be planned with the building, and cannot, therefore, well be applied to old buildings. Each system, however, has its advantages, according to the size and special circumstances of the building; and with mechanical means now so readily at our disposal, there should be no difficulty in providing either the temperature or change of air that our medical advisers may decide from time to time to be necessary or advisable, for, after all, we must look to the medical profession to lay down the hygienic requirements of the children to be accommodated in these rooms, which it is our humbler but equally necessary part to see carried out as effectually and economically as possible.

CORRESPONDENCE.

The Concrete Craze.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—I sincerely hope you will give a hand to put down the concrete craze which threatens to kill our long-tried and trusty native material and stamp out our few living industries. It is a shocking thing to contemplate a city studded with consumption traps, and a land once proud of its fine church architecture taking on to the shoddiest of shoddy imitation instead of the genuine native stone which abounds in the land. Just think of the enormous sums sent away for cement. For the laundry in Dolphin's Barn alone £450 went out for foreign cement. That hits you and me, and every man in Dublin. Do kindly make a stand against it.—Yours, etc.,

OLIVER J. O'CONNOR.

Victoria Hotel, Kilkee,
September 15th, 1907.

ANSWERS TO CORRESPONDENTS.

Defective Hot Water Supply.

C. Johnson writes:—Can any of your readers assist me with an explanation of the following: I have put up a bath and lavatory basin with hot and cold supply. The bath-room adjoins kitchen on same level, the cylinder is beside kitchen range, and raised about two feet six inches over bath taps. The cold water supply is in a tank over bath; there is no great head room, but still the cold water supply is raised above the cylinder. The whole place is a bit scant of head room, still I can find no defect in the circulating pipes, yet the flow of hot water to both bath and lavatory basin is quite intermittent, flowing for a few minutes and then stopping, or trickling very feebly.

I shall feel much obliged if any of your readers can help me by suggesting an explanation of this defect.

Messrs. Altenbach, Ltd., of Brighthouse, have commenced business as manufacturers of castings in malleable iron, steel alloy, and special steels, claiming as a special feature to make mild steel castings for breakdowns within a very short time.

CASTLETOWN-BEREHAVEN CHURCH.

We publish the assessor's report in the above competition at the request of Mr. S. F. Hynes, of Cork. Mr. Hynes forwards us at the same time a copy of a lengthy communication addressed to the Royal Institute of British Architects in London, but as this document is of a very controversial character we regret we cannot publish it. "E" is Mr. Hynes' design; "B" the design selected.

Report on Designs Submitted for a New R.C. Church at Castletown-Berehaven.

TO THE VERY REV. J. P. CANON McDONNELL, P.P., V.F.

In preparing this report I have laboured under the disadvantage that no uniform written instructions or conditions of competition were previously drawn up. To guide me in arriving at as fair a decision on the merits of the different designs, as was possible under the circumstances, I have collected the necessary information from the correspondence sent me by Canon McDonnell, and his statements of his interviews with the competitors. As the architects did not call for these instructions, etc., before submitting their designs, they cannot well complain now of mistakes or misunderstandings, if such there be. From the correspondence, I gather that there were three conditions which appear to have been communicated, either verbally or in writing, to each architect.

1. The church while being built was to interfere as little as possible with the existing church.
2. It was to accommodate from 700 to 800 people.
3. The design for church was to comprise a nave, with aisles, sacristy, nuns' choir, mortuary chapel, and baptistery, and the shell of this building was not to cost more than £7,000.

For the third condition I take the shell of the building to mean the interior plastered, wood and iron work, stained or painted, wood and concrete floors laid (no tiling), windows glazed. In this I find all the architects agree, except one (A), whose estimate does not include floors or glass. I cannot see how the plastering could be finished if the windows be left unglazed. However, the glazing would be such a small portion of the total cost, the point is not worth considering.

I note that Canon McDonnell expressed an objection to a church with a belfry on the gable to all the competitors, but he does not wish that to be a reason now for rejecting a design in every other way superior. I agree with the opinion that the locality merited a more imposing church than one with a belfry gable.

These, I take it, represent the conditions under which the architects proceeded to work, and to these alone I directed my attention. Though to some extent each competitor laboured to carry out these conditions, still there is no doubt that the fact of their not being clearly and precisely stated in writing led to a rather free interpretation of them in some cases. I have lettered each design A, B, C, D, E, according to the accompanying key for reference to this report.

The first condition referring to maintaining the present church for worship during the progress of the new building is one, I am sure, that hampered considerably any architect who honestly tried to adhere to it. However, the condition having been imposed, I feel bound to give due credit to those who made an effort to fulfil it. Owing to the nature of the site, no attempt at true orientation has been made by any architect.

Design Marked "A."

From the site map with this design it will be seen that the church is laid down in alignment with convent for the purpose of connecting convent and nuns' choir with the church by a covered passage. This arrangement involves cutting into the rock considerably, and removing forty-four feet from the length of old church. It has the advantage of opening up the convent front completely, but it calls for an early purchase of the houses in Main Street, as the front of church is only thirty feet from the rear of the houses.

The plan has been well considered, and the requirements provided with a view to economising space. The area of ground covered is small compared with other plans; the seating accommodation is proportionately reduced. For the purpose of comparison I give the ratio of area for the several designs, and the seating accommodation provided, calculating twenty inches wide of the usual church seat (as shown in some plans) for each person.

	A.	B.	C.	D.	E.
Ratio of area covered by building ...	8.6	10	11	11.3	7.3
Seating accommodation ...	540	650	595	684	504

The seats for 540, as shown on this plan, should be reduced to 500, as the passages in aisles are figured only two

feet six inches wide, and in this way forty seats would be lost. The report states seating accommodation is provided for 880. This must be the result of some clerical error, as the seating is all carefully drawn on the plan. This is the most ornate of any of the designs submitted. The period of Gothic selected—the latter half of the fourteenth century—lends itself to such treatment. The entrance façade is very graceful and effective; if anything, it is too long, considering how close it comes to the existing boundary, and subtends an angle of 90 degrees with the spectator while the levels of the ground, a point that does not appear to have been considered by any of the competitors, might call for different treatment.

On the question of cost, this design required serious consideration. In addition to the lavish use of cut-stone on the entrance façade, all the windows of the aisles, clear storey and chancel have mullions, and various designs of bar tracery. It will be understood that this must be considered a very costly style of church for its size. In no other is so much tracery introduced. I have carefully calculated the cost, and, allowing for all the economy in the plan, I do not consider the shell could be executed for £7,000, or a reasonable percentage over that amount.

Design Marked "B."

This plan is arranged on the site with the entrance almost due south. This is the best position for a view of that end from present entrance gate, but it does not open up the convent as well as design "A." The transept only of old church would require removal. If the old church were removed, this plan, with a little modification of the sacristy and nuns' choir arrangement, could be placed on the ground to greater advantage. Clearly, the author was hampered in his efforts to preserve the old church. The design is thirteenth century pointed Gothic, with some of those foreign characteristics peculiar to the Gothic period in Ireland. There is no tracery introduced, and it appears to be an honest effort to comply with your conditions. I prefer the original design for the entrance end to the alternative, as its treatment is more in character with the remainder of the building, and, also, I believe the alternative design would exceed the limit of £7,000.

The arrangement for the nuns' choir and sacristies is faulty, and requires modification by placing them at opposite sides of the church, an alteration noted by competitor on the plan.

Design Marked "C."

The author of this design decided to maintain the old church intact, and laid down the new church altogether clear of it, with the result that for want of sufficient space, and so as to give the required accommodation, the plan of the new church worked out almost a square, and brought the entrance end close up to the S.W. boundary, completely blocking it up. Needless to state, the arrangement is very bad. The author realises this. I believe it is the result of a misunderstanding, and is much to be regretted. The elevation and the admirably worked-out perspective (the latter made from an elongated plan) illustrate a type of church, simple, yet not severe, and admirably suited to a country parish. It has the feature of a belfry on gable, which is objectionable. It has seating accommodation, as shown, for 600.

This church covers the second greatest area of any of the designs, and would, even on the faulty plan, cost more than £7,000.

Design Marked "D."

This design covers the greatest area on the ground, together with providing a floor over the sacristies for society meetings. The author boldly faced the difficulty of the old church by providing for its complete removal, and lays out the new church somewhat on the lines of the old, but extending into the high bank as far as the road, so that there is no rock cutting saved, and to within about forty feet of Sullivan's boundary, rather close for a satisfactory view of this end. In deciding to remove the old church, this architect did the right thing in one sense, but I cannot, in justice to other competitors, ignore the fact that in doing so he failed to comply with one of the most troublesome conditions.

The seating accommodation is 684, while there is standing room for fully 100 more, and the other sub-divisions of the plan are arranged on equally liberal lines.

Considering the great area covered by this plan, and the cubical contents, which is considerably over any of the other designs, and more than double some of them, it is unreasonable to expect that it could be executed for £7,000. I have worked it out at considerably over that amount.

The style of the building is a free treatment of the early English style of pointed Gothic, with some rose windows and other bar tracery of the decorated period. It includes

the objectionable feature of a belfry on gable, otherwise it is a pleasing design, but it does not comply with your conditions.

Design Marked "E."

This plan is the smallest of any submitted. To place it on the site and preserve the old church the entrance should face S.E., and the transept of the old church be removed.

The seating accommodation is for 504. The standing room is very limited, say, fifty at most. If your requirements are for 700 this could not be considered suitable.

The design is mainly early English in character. The entrance end, with its fine window of the decorated period, and flanking turrets, present to my mind the most successful and appropriate treatment for this portion of the church of any of the designs submitted. The façade is of such a width that the eye can take it in from the limited range of vision.

The plan bears evidence of haste in its preparation. The side chapel would not be sufficiently large for the nuns' choir as noted, and the alternative position shown would not be at all suitable, as only from a small angle of it could a view be had of the high altar, and this portion would be in full view of the congregation. The mortuary should open on to the church. The treatment of the interior (no doubt for economic reasons) is weak. I should like to see the junction of the nave and chancel marked by some feature of bold design.

On the question of cost, this architect states:—"I have carefully cubed, etc., the proposed building, and from cost of similar work carried out by me, I would be able to have it carried out for sum named for expenditure." I have adopted the same test, having procured my information independently of the author, and I agree with him. All the other designs are for very much larger churches, some by 50 per cent., and, excepting design "B," all are more ornate. There is very little tracery in this design, while design "A," which is the next larger in size, may be said to have elaborate plate or bar tracery in every window, so that I think the test applied in this case strongly corroborates my report regarding the estimates for the other designs.

From the foregoing analysis of the designs submitted, it will be seen that I am unable to give my unqualified approval of any of them, or to recommend a design as entirely suitable for erection on the present site. To arrive at a decision, I am obliged to return to the history of this competition and view it in another aspect. It would appear that the first design received was from the author of "B." For economy, I presume, this design was worked out in a pure type of early pointed Gothic, and, in its position on the site, accommodation, and probable cost, appears to comply with the conditions. After this, it would appear from the correspondence, other architects solicited the privilege of submitting designs, which was granted, and the matter resolved itself into a kind of irregular competition, in which Canon McDonnell promised to be guided to a selection by an expert. A desire for tracery windows and a turret belfry appears to have been given effect to by two of the later competitors, "A" and "E," both of whom in working out that idea produced very meritorious designs, but to succeed in this, "A" had to reduce the church in area to about 50 per cent. less than the requirements, and even at that reduced area, the almost extravagant introduction of tracery (considering the limitations of the public view), has brought the cost over the limit. Design "E" has also been worked out on these lines with pleasing results, and within the limit of cost, but this has been secured by still greater economy in superficial area, less accommodation, combined with a weak interior. It will thus be seen that "A" and "E," who stand highest for excellence of design for entrance elevation, fail to comply with the conditions. From these I revert to design "B," which stands alone as being the original effort to meet the requirements, and as this design fulfils all the conditions more closely than any of the others, I believe that its author has the strongest claim to be selected as architect, but he is bound to modify his design in such a way as may be considered necessary, and within a given time.

In the event of failure to comply with this condition, Canon McDonnell should be free to commission any of the other competitors to amend his design on the lines laid down in this report.

I regret delay to this report, which was the result of accidental circumstances entirely beyond my control.

Limerick.—Tenders are invited for supplying, erecting, and putting in working order a boiler at Glynn District Schools, Glin, Co. Limerick, according to plans and specifications of Mr. James D. Leahy, C.E.

OUR ILLUSTRATIONS.

Examples of Plaster Work at the International Exhibition.

Our readers will remember that in previous articles we have referred to the excellence of the fibrous plaster work executed by Messrs. George Rome and Co., of Clanwilliam Place, Dublin, and Glasgow, at the International Exhibition. Practically speaking, all the buildings, certainly all the more imposing, have been executed in fibrous plaster by Messrs. Rome. All the immense columns, heavy and wide cornices are carried out in the same material. The finish and general appearance of the work speaks for itself, and has been, perhaps more than any other feature of the Exhibition, admired by visitors, while as to its durability, the fact that it has stood the severe test of practically a year's exposure in the moist and changeable Irish climate, including a particularly wet summer, is certainly a strong recommendation. The process of manufacture is an amalgamation of canvas (about one-eighth mesh) and plaster. Where large casts are required, strips of wood are inserted, and combined with the canvas and plaster to give strength to the whole. Over 1,200 tons of plaster and a quarter of a million yards of canvas have been used on this work. All the work has been manufactured on the premises, with the exception of the modelling, which was executed at the contractors' workshop, 5 Clanwilliam Place.

In addition to the buildings, Messrs. Humphreys have fitted or finished a number of the stalls, and our readers will remember a particularly pleasing furniture exhibit of Messrs. Pim Bros., Dublin. The exterior of this stall is entirely in fibrous plaster, and has a really good effect, while the interior, showing an apartment furnished by Messrs. Pim, has some very delicate plaster work on the ceiling and walls. The interior and exterior are shown in our illustrations.

Amongst the many important works done by Messrs. Rome may be mentioned the entire plaster work of the Glasgow 1900 Exhibition, costing about £30,000, and the plaster work of the Belfast City Hall, which was fully illustrated by us some time since.

SUGGESTED MENU FOR AN ARCHITECTURAL DINNER.

Our resident correspondent at Portrane Asylum sends us the following draft menu for the next annual dinner of the Architectural Association:—

Hors d'Œuvres.

Cock's Comb Ridges. Worm-screws on Toast.

Potages.

Bulls' Skull Soup. Dogs' Teeth.

Poisson.

Vesica Pices.

Entrée.

Rafters' Feet. Dragon Pieces. Monkeys' Tails.
Birds' Mouths. Lambs' Tongues.
Elbow Linings.

Roti.

Groin Ribs. Dogs' Legs. Bulls' Eyes.
Rebates. Window Backs.

Legumes.

Poppyheads and Acanthus Leaves. Ball Flowers.

Game.

Sparrows' Picked. Swans' Necks. Weather Cocks.

Savoury.

Eggs and Darts. Doves' Tails. Inspection eyes (in aspect).
Bird's Eye Maple.

Glacé.

Snowboards Iced.

The many friends of Dr. Robert Cochrane, F.R.I.B.A., Chief Surveyor of the Office of Public Works in Ireland, will learn with sincere regret that he has for some time past been very seriously ill. He is, however, we are glad to be able to add, considerably improved in strength, and is at present sojourning at a Northern watering-place.

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VOL. XLIX.	SEPTEMBER 21, 1907.	No. 19
CONTENTS.		PAGE.
Topical Touches	...	645
School Hygiene	...	646
Correspondence	...	649
Answers to Correspondents	...	649
Castletown-Berehaven Church	...	650
Our Illustrations	...	653
Suggested Menu for an Architectural Dinner	...	653
LEADING ARTICLE:—		
The Use or Abuse of Concrete	...	654
COMMENTS:—		
The Disaster on the St. Lawrence Cantilever Bridge	...	658
Our Southern Letter	...	658
Books Received	...	658
Building News	...	661
Engineering Items	...	665
Safe Loads on Varying Soils	...	666
The Bridges at Pontypridd	...	666
New Fire Brigade Station, Dublin	...	669
Imports	...	669
Christmas Presents	...	669
Engineering News	...	670
Contracts	...	671

THE USE OR ABUSE OF CONCRETE.

In this issue we publish a letter from Mr. Oliver O'Connor, in which he asks us to exert our influence against the use of concrete. The matter seems to have arisen in this way:—A controversy has been going on in some of the Dublin daily and evening papers, and some strong arguments were used on both sides. It would appear that a protest against the use of concrete blocks was made by the Bricklayers' Society, followed by a resolution of the Dublin Industrial Association (a most admirable body, which has already done a great deal for Irish industries, and will, we trust, continue to do even greater good). Subsequently a strong protest against the use of concrete blocks at the new church of the Jesuits at Clongowes Wood College was made by the Tullamore Stonecutters' Society. Following on these expressions of opinion came a letter from Sir Thomas Drew, LL.D., addressed to the *Freeman's Journal*, in which he deprecated and denied certain statements made by the Association in condemnation of concrete. Some of Sir Thomas Drew's words, where he refers to "the whine, 'O, pity the poor bricklayer,' " have been taken great exception to. Now, we may at once eliminate that point, as all acquainted with Sir T. Drew, and his long and honourable career in Dublin, will say that he is incapable of being intentionally offensive. The phrase may not, in the somewhat electrical state of the controversial atmosphere prevailing, have been very happily chosen. It is, however, of little importance. What Sir T. Drew plainly meant is simply this—that movements for the support of bricklayers, like other classes of society, must rest upon some surer basis than pity. So far as we are aware, history records no instance of any trade or class being preserved through pity or sympathy, a fact which the bricklayers themselves would probably be the first to insist upon. Many of our Irish industries have, through the agency of societies and individuals with aims like those of the Industrial

Development Association, been encouraged, and helped to establish themselves on a firm footing, as witness the Irish tweed and lace industries; but those industries gave extraordinarily good value for money, and we are quite certain that the Irish people would never have supported them if this had not been so.

The Association, with the most laudable motives possible, made an appeal to the Irish public. We are not aware that the Council, which was responsible for the statements given forth, included any practical builder or architect. Sir Thomas Drew does not appear to us to combat the principles of the Association at all, but simply to suggest the inadvisability of certain general and sweeping assertions. The Association based its appeal on two grounds—first, that concrete dwellings are *per se* damp and unhealthy; second, that the bricklayers should be supported to prevent them from being "wiped out." Now, as to the first of these contentions, that concrete dwellings are necessarily damp and unhealthy, the Association fortresses itself behind an opinion of Dr. Anthony Roche, and certain corroborative evidence from gentlemen who have had unpleasant experiences of concrete houses. We must take these statements to apply to ordinary concrete walls, and not to "block" construction, because very little of the latter has been used in Ireland. In a letter to the *Freeman's Journal*, Mr. Oliver O'Connor quotes Dr. Roche as his authority for the statement that the damp of these concrete houses is "a strongly predisposing cause of consumption." In the face of such a statement, and with the warmest hopes and aspirations for Irish industrial progress, we must say it is hopeless to argue, and we have not the slightest hesitation in saying that such declarations are well calculated to injure rather than help Irish industries. If Dr. Roche says he knows concrete dwellings which "exude" (or "condense") moisture, and so are hot-beds of consumption, we readily accept his statement; but does he not know of any brick or masonry dwellings which are in an identical state? Does he not know that on the western seaboard of Ireland a 14-inch brick house would be useless to keep out the damp? Has he never known the terribly damp condition of nearly all limestone houses and churches in the West, save such as have been cemented, even in cases where the walls are three feet thick? Has he not heard, too, of the practice of backing with concrete a stone-faced wall to keep out the damp? Is Dr. Roche not aware that within a few miles of Dublin, at Howth, Bray, or Greystones, dozens of concrete houses, perfectly dry and wholesome, are to be found? Is he not aware that, practically speaking, the whole of the fashionable health resort of Greystones has been built of concrete; that the houses are dry and healthy, and that it is the favourite summer resort of the leading lights of the legal and medical professions and their families? The truth of the matter is, that dry, wholesome houses of either brick, stone, or concrete can be found readily; and similarly, damp, unwholesome dwellings in any of these materials can readily be pointed out. The whole matter must be settled on the balance of local convenience and comfort, and nothing else; and this depends upon the immediate local conditions, the class of labour available, the suitability of the material at hand for concrete-making, for with concrete everything depends on that, and upon the skill and care used in mixing and building, just as in masonry. Hence, there are some localities in Ireland where concrete will be found the cheapest and best material to use, in others masonry, and in others, again, brickwork, and we are strongly of opinion that the latter is the case in the city of Dublin, and that in the city and suburbs of Dublin a better and cheaper house can be built in brickwork than in any other material. The only complaint we make against the Association is that they, instead of attacking specific cases, have been led into indulging in vague generalities, which will not bear examination. Says Mr. O'Connor in his letter to the *Freeman*:—"What every man of practical experience in the matter knows is that these houses are damp and cold. Sir

Thomas says that fairly dry concrete can be made with crushed granite or sandstone, with no immoderate proportion of cement. But who, sir, ever saw your city jerry-builders or builder of the non-jerry cult use such a mixture? Such a mixture would run the price of concrete far beyond that of brickwork." Apparently Mr. O'Connor has not quite followed Sir Thomas Drew. What Sir T. Drew really means is that an excessive or "immoderate" proportion of cement tends to make the wall excessively dense, and hence more likely to condense moisture. Everyone has seen this demonstrated on a glazed brick or faience-lined wall on a damp day.

Mr. O'Connor goes on to say:—"I know one gentleman, a builder himself, and the son of a builder, who built a couple of years ago for himself a concrete house costing about £1,000. He has lived in the house since it was finished. I showed this gentleman a copy of Professor Roche's opinion, and asked him what he thought of it. He said he endorsed every word of that opinion. He told me that in consequence of the damp the woodwork of his house was already rotting. He said he would never again build a concrete house, and would advise anyone against doing so." We are perfectly ready to accept this evidence; but we venture to suggest some explanation could be found. It may even be admitted that, as a general rule, a brick house in Dublin will be the more comfortable, and under normal circumstances there can be no doubt also the cheapest, and hence the most suitable.

Mr. O'Connor dreads the "wiping out of the bricklayer." We venture to say that will never take place; but the condemnation of the use of concrete generally will not help him. One might as well condemn in the interests of road carriers the locomotive steam engine. What we have got to do (and here we are entirely with Mr. O'Connor) is to combat the *abuse* of concrete. The use of concrete blocks in Dublin has been far from general so far, and we confess we are not surprised. Concrete blocks are not cut stone; neither are they moulded brickwork, and the imitation of forms of stone and brick is an outrage on good taste. Any person who desires the forms and characteristics of chiselled stone or moulded brick should pay for it in those materials or go without. We fail, further, to see what outstanding advantage the concrete block possesses over ordinary concrete. None that we can see. It is certainly not more beautiful, and is rank imitation as used in most cases. On the other hand, it doubtless has its proper uses. It sounds like a platitude to say that there is nothing in either the animal, vegetable, or mineral world that has not, if we only know it. A considerable protest has been made against the use of concrete blocks in the Jesuit Church at Clongowes Wood. We are hardly qualified to pass a decisive opinion on the meagre facts before us; but, briefly, it appears that there is no suitable stone in the vicinity, and the cost of bringing stone from a distance caused the expense to exceed the sum available; that by the omission of the cut stone and the substitution of concrete blocks the building could be erected for the sum available. Now, nobody will assert that the concrete blocks are artistically a satisfactory substitution; that they will not last as long as Irish limestone is self-evident, though possibly they may last long enough for practical purposes. The question then remains: What can be done in such cases? Undeniably they are rare, for in Ireland, in nine cases out of ten, simple cut-stone dressings can be procured nearly as cheaply as concrete blocks; but what is to be done where there is no local stone, and stone brought from a distance is excessive in cost? That is a problem requiring solution. Finally, as regards concrete, and we have done. Ferro-concrete is a combination of materials that has proved its worth. It has come to stay. Things can be done in ferro-concrete that are not possible in any other material. It is strong and useful. That it will ever in this country seriously rival brickwork for the construction of ordinary houses is improbable in the highest degree. It is not cheap under such conditions,

and brickwork can here well hold its own. Then, as to the use of foreign cement in concrete, that is solely due to the lack of Irish enterprise. There is at present only one manufactory of cement in Ireland. It makes a capital article, but the supply does not fulfil the demand. A properly managed cement manufactory, turning out a reliable cement, should be an unqualified success.

As to the use of foreign or English stone in Ireland, Sir Thomas Drew is, of course, perfectly accurate in stating that stone was largely imported into Ireland for church-building purposes in the Middle Ages, as anyone can see for himself if he chooses to take the trouble. Somersetshire or other convenient stones were brought to Ireland, and so were Purbeck marbles; but there is, we think, no reason why that should continue—in fact, it is the duty of every Irishman to stand out for the use of home material in every instance. We have a fine variety of marbles, building stones, and monumental granites for polishing. The restraint in enrichment which the hardness of these stones imposes upon the designer is an advantage in some respects, because rich and delicate detail suitable enough in the south and west of England will not stand in our moist Irish climate. Hence plainer and more solid forms are advantageous. In Dublin, moreover, there is absolutely no excuse for the importation of stone. We have a magnificent granite for all ordinary purposes, and capable of a considerable degree of enrichment, as is exemplified in many buildings throughout the city. We have the excellent limestones of the Co. Meath, etc., within reasonable distance of the city, and for finer work Mount Charles stone can be shipped direct into Dublin. In combating such actions as the importation of English stone for the new College of Science in Dublin, the Association is on sure ground, and certain of general support. What is needful is that a distinction should be drawn between a practice of wilful and deliberate or careless importation of English or foreign brick or stone where Irish materials could be procured with equal, or nearly equal, advantage, and cases where, owing to local circumstances, the use of concrete or imported materials is imperative. Such cases are happily daily growing less and less. In addition to dealing with such matters, the Association would be performing an office useful in the highest degree if they took suitable cognisance of cases where native manufacturers or providers of any kind have abused the confidence of Irish employers who may have given them a preference by not keeping faith in regard to time and quality of supply. Such instances were formerly very common. The Association could do no better work than inculcating the necessity of promptness in delivery and general business-like methods. The English firms, with their splendid army of courteous and capable agents and bagmen, must be met on their own ground, and with like methods.

Only some little time ago Welsh bricks and bilious terra-cotta, with Portland and Bath stones, were the favourite building materials in Dublin. That much, at least, has now been altered, and a stronger feeling in favour of native materials prevails.

At the moment of going to press we notice the preparations for the erection of the Queen Victoria memorial statue in the quadrangle of Leinster House, Kildare Street. The statue has, we understand, been cast in bronze in Paris from the designs of Mr. John Hughes. It was with regret and almost amazement that we read in the evening papers of the conveyance of the stonework from the quays to the site, and that stonework itself was of "French marble." If this be true, comment is needless.

◆◆◆◆◆

Dublin.—Messrs. J. and P. Good, Ltd., Great Brunswick Street, are building additions and carrying out alterations to Hillside, Glasnevin, for Mr. B. F. Eustace, J.P. The architect for the work is Mr. A. G. C. Millar, B.E., M.R.I.A.I. Quantities were prepared by Mr. J. Graves Clayton.

COMMENTS.

The Disaster on the St. Lawrence Cantilever Bridge.

The disaster which occurred recently on the construction works of the great St. Lawrence Cantilever Bridge has had most deplorable and fatal results. Complete particulars are not yet to hand, but it is stated that over eighty persons have lost their lives. Most of these were American workmen engaged on the work.

The bridge was being built over the St. Lawrence some five miles below Quebec. The anchor pier on the south side suddenly gave way, and 800 feet of steel superstructure fell into the river, about ninety men being at work on the bridge at the time; most of them were crushed to death. It would seem that one of the huge cantilevers of steel which was being fixed was served by a railway on which an engine and several cars carrying material ran out, when the cantilever dipped, and suddenly gave way under the weight of the train, the outer end of the cantilever, of course, being unsupported, and tore away the structure of the anchor arm at its abutments. The entire length of the bridge, when completed, was to have been a mile and a-half in length, the centre span alone being some 1,800 feet long. There would seem to be, unfortunately, but little doubt that some blundering or carelessness on the part of someone is responsible for this most deplorable disaster, but it is at this stage impossible to ascertain the full facts.

The bridge was intended for railway traffic. At present passengers must be ferried across, the nearest bridge being 170 miles away, higher up the St. Lawrence, at Montreal.

The 3,240 feet which constituted the projected length of the bridge was made up of three main spans, the central cantilever span, 1,800 feet, being sub-divided into a series of three trussings. On either side of this great span, but clear of the river, were two spans of 500 feet each, which had no great abutment, but themselves served to anchor down the supported end of the main cantilever. In addition to these three main spans were two comparatively short trabeated spans of 220 feet each, one on either side, connecting the main spans with the mainland, and bringing the bridge to the level. At the time of the disaster, it appears, the 220 feet span, 1,500 feet span, and practically the whole of the 562 feet 5 inches constituting the first section, or sub-division, of the great 1,800 feet span had been completed. How much of this completed work has actually gone down we do not know.

For purposes of comparison, it may be mentioned that the centre span of the Forth Bridge is 1,710 feet, as against the 1,800 above referred to. The total height from low water to the top of the cantilevers was 414 feet, and the weight of steel was calculated at 40,000 tons.

The accommodation to be provided was as follows:—Two railway tracks, two electric tram tracks, two roadways, and two side paths for foot passengers.

OUR SOUTHERN LETTER.

(FROM OUR CORRESPONDENT.)

Sewerage Work.

The Law and Finance Committee of the Cork Corporation have had before them the question of providing a main sewerage scheme for the city. There is no doubt that if a good scheme were provided it would immensely improve the health of the city and the appearance of the river, and tend to reduce the mud to be found at present silting up on the banks of the river between the city and Queenstown. Although the cost of such a scheme would be a large undertaking for the citizens, it would well repay them.

It would also be a good opportunity for simplifying the existing network of sewers which drain the centre of the city, and are mostly composed of old rubble sewers which were constructed when the principal streets were formed by arching over the river. It was proposed that a prize should be offered for the best scheme. It was decided that the matter should be referred to the Corporation and the Public Health Committee.

The City Engineer has now approved of the scheme designed by Messrs. Hill and Son, engineers, for the drainage of Victoria Road and Ballintemple districts. This matter was being promoted by the Cork Rural District Council, and has been under discussion for the last twelve months. The scheme has also been approved of by the

Medical Officer of Health, so there should be no further delay in connection with the matter.

The Mitchelstown (No. 1) Council have received a report from Mr. Draper, C.E., in connection with the proposed sewerage scheme for the village of Kildorrey, and he states the estimated cost of the work would be about £700.

General.

The Mitchelstown Council have decided to advertise for a loan of £2,300 for the purpose of providing an electric lighting installation for the town.

The Skibbereen Urban Council propose to carry out some alterations and improvements to the Town Hall.

The Kerry County Council have now made all arrangements for obtaining the sum of £8,500 which is to be expended in the construction of the new County Hall.

The same Council have decided to construct a new pier at Reenard, under the Marine Works Act, 1902, at an estimated cost of £2,500. The scheme has received the approval of the Lord Lieutenant.

The Board of Public Works are prepared to receive tenders for the construction of a wireless telegraphy station at Corkbeg, County Cork.

At the Local Government Board enquiry in Kanturk, in connection with the Labourers Act, there were some interesting figures given in connection with the building of cottages. The total cost of the scheme under consideration amounted to the sum of £75,448, made up as follows:—416 cottages with acre plots—Land, £11,232; fencing, £4,250; buildings, £54,211; legal expenses, £160; engineering expenses, £300; other incidental expenses, £567; total, £70,720. 185 additional allotments and two one-acre plots at an estimated cost of £4,728.

The cost of the cottages under the first three schemes with half-acre plots was £100 each, and for the last scheme with acre plots cost was £209 each; and the cost of the present scheme amounts to £170 per cottage. The new cottages are to be smaller than those constructed in the last scheme, under which it is found that £4 per cottage has to go on the rates, and under the proposed scheme this amount is reduced to £1 per cottage.

BOOKS RECEIVED.

"Applied Mechanics." A treatise for the use of students who have time to work experimental, numerical, and graphical exercises illustrating the subject. By John Perry, M.E., D.Sc., LL.D., F.R.S., Whit. Sch., Assoc. M.Inst. C.E., Professor of Mechanics and Mathematics in the Royal College of Science, South Kensington, Past-President of the Institution of Electrical Engineers, President of the Physical Society. With 372 illustrations. New edition, revised and enlarged. Price, 7/6. Cassell and Co., Ltd., London, Paris, New York, and Melbourne.

"Where Shall I Live?" Guide to Letchworth (Garden City) and Catalogue of the 1907 Urban Housing and Rural Homesteads Exhibition, with plans and detailed cost of model houses, and specially written articles by J. St. Loe Strachey (Editor of the *Spectator*), Alderman Thompson (author of "The Housing Handbook" and Chairman National Housing Reform Council), Henry Vivian, M.P. (Secretary Labour Co-partnership Association and Chairman-Co-partnership Tenants' Housing Council), Henry A. Aldridge (Secretary National Housing Reform Council), Miss Constance Cochrane (Rural Housing and Sanitation Association), Aneurin Williams (Chairman First Garden City, Ltd.), Harold Craske (Secretary First Garden City, Ltd.), Ebenezer Howard (author of "Garden Cities of Tomorrow"), Raymond Unwin (Consulting Architect to First Garden City, Ltd.), Miss Nicholson (President Letchworth Branch G.C.A.), W. H. Gaunt (Estate Agent, First Garden City, Ltd.). Published by First Garden City, Ltd., 326a High Holborn, London, W.C. Price, 6d. net.

"The Cathedrals and Churches of Northern Italy." By T. Francis Bumpus, author of "The Cathedrals of England and Wales," "The Glories of Northern France," "The Cathedrals and Churches of the Rhine and North Germany," etc. With eighty-one illustrations (nine of which are in colour). Price, 16/- net. T. Werner Laurie, Clifford's Inn, London, E.C.

CONTRACT.

TO BUILDERS.

Estimates wanted from competent Contractors for erection of "Carnegie Free Library" at Swords, Co. Dublin.

Plans may be seen at the Dispensary, Swords, and at the Office of the Architects.

Sealed tenders, marked "Tender for Carnegie Free Library," to be delivered to Mr. A. J. Hamill, Secretary to Committee, Swords, on or before September 30th, 1907.

The lowest or any Tender will not necessarily be accepted.

ANTHONY SCOTT & SON, Architects,
34 Lower Sackville Street, Dublin.



Antrim.—Tenders are invited for the erection of a new school at Doagh, according to plans of Mr. Thomas Wilson, Glenside House, Belfast, which can be seen at Mr. Mellor's 21 Church Lane, Belfast. Tenders close to-day.

Anamoe.—The Board of Guardians of the Rathdrum Union will, on the 14th of October, receive tenders for building a dispensary residence and dispensary for the Anamoe Dispensary District, at Anamoe, in accordance with a plan and specification which can be seen on application at the office of the Clerk of the Union, or at the office of the Guardians' engineer, Mr. George T. Moore, C.E., 1 and 2 Foster Place, College Green, Dublin.

Ballymahon.—Tenders are invited by Rev. F. Cahill, Adm., Ballymahon, up to 20th inst., for the repair of all harm and injury done by lightning to the tower of St. Matthew's Church, Ballymahon. The tower must be left in the same state of perfect repair as existed after the final examination and approval of the architect.

Bawnboy (Co. Cavan).—Bawnboy (Co. Cavan) Rural District Council intend to spend £10,000 under the Labourers' Acts in that district. A scheme is in hands at present.

Blackrock.—The Board of Public Works invite tenders for the building of a new post office in Blackrock.

Carlow.—The Board of Guardians will, on the 3rd prox., consider tenders for the erection of a new Fever Pavilion at the Hospital, Bagenalstown, County of Carlow, in accordance with plan and specification prepared by Mr. James O'Donnell, As.M.Inst.C.E. Quantities have been prepared by Mr. George Metcalfe, College Park Chambers, Dublin.

Coalisland.—About nine months ago the flour mills of Messrs. R. Stewart and Sons, Coalisland, were destroyed by fire, and the new premises are now completed. The architect to whom the new erection was entrusted was Mr. T. W. Henry, C.E., Belfast, the building contractors were Messrs. McLaughlin and Harvey, Ltd., Belfast. The bricks, some 300,000, which were used in the building were procured from the Ulster Fire Clay Works, Coalisland, which were manufactured a few hundred yards from the site of the mill. A steel staircase is placed outside the mill which is 60 feet long, 40 feet wide, and four storeys high. This stair can also be used as a fire escape. The staircase was put up by Messrs. Musgrave and Co., Ltd., Belfast, at a cost of £98. The motive power consists of two 75 h.p. electric light type Tangye's gas engines, driven by suction as producers, and arranged so that either engine can be driven by either gas plant or the two engines driven off the other plant. The engines are running at the rate of 180 revolutions per minute the power being transmitted from the fly-wheels to the main shaft by 10-inch Balata belts. The machinery is mainly driven off the main shaft.

Cootehill.—At the monthly meeting of the Cootehill Rural District Council, in connection with the proposed new scheme under the Labourers' Act of 1906, the Clerk submitted for signature the petition to be forwarded to the Local Government Board asking sanction to the loan of £11,158 for building labourers' cottages, purchasing additional allotments, etc. It was mentioned that the rate of interest would be 3½ per cent. The petition was signed by the Chairman, and the Clerk directed to forward same.

Cork.—Tenders for the erection and completion of a wireless telegraphy station at Corkbeg, County Cork, will be received by the Board of Works on the 25th September.

Clare.—At a meeting of the Ennis Board of Guardians a resolution was made to the proposal of the Clare County Council to turn over the Tulla Union Workhouse as an auxiliary asylum for the accommodation of the insane poor in the county. In the course of the discussion which ensued, Mr. P. J. Linnane, J.P., pointed out that there was fear that even if they went to the expenditure of £2,000 converting Tulla Workhouse into an auxiliary asylum, which was the estimate, they would still have to build at the parent asylum. Several members agreed. Mr. Linnane proposed the following resolution:—"That having heard both sides of the question with regard to the proposed extension by the County Council of the present

asylum, or the acquiring of the Tulla Workhouse for the purposes of an auxiliary asylum, we are of opinion that the better course to pursue is to make the extension at the parent asylum, as, in our opinion, it would be cheaper and better in the end." Mr. O'Grady seconded the resolution, which was adopted. The Scariff Board of Guardians this week also considered the project, and passed a resolution in favour of acquiring Tulla Workhouse as an auxiliary.

Dublin.—The Board of Works will receive up to the 22nd prox. tenders for the superstructure of the new College of Science in Upper Merrion Street, Dublin, and for the erection of workshops adjoining. Bills of quantities for each work, and form of tender, can be had on application to the Secretary, Office of Public Works, Upper Merrion Street, Dublin, on the payment of £5 5s., to be returned on receipt of a *bona fide* tender.

The new church of St. Baethen has been dedicated by his Grace the Archbishop. The new church is of Gothic style, considerably smaller than the ancient one, which was 46 feet long and 22 feet wide, with a choir 17 feet long and 15 feet wide. The new church also has a small chancel. It and the area for pulpit and prayer desk are floored with ornamental tessellated tiles and marble steps. The windows are leaded lights, with tinted cathedral glass, and the roof is of red Roman interlocking tiles.

Mr. Barnewall Crofton, Local Government Board Inspector, held an inquiry for the purpose of considering the propriety of confirming an improvement scheme made by the Rural District Council in respect of the several electoral divisions of the rural district. The scheme contemplates the compulsory purchase of land in the districts of Blanchardstown, Castleknock, Coolock, Santry, Howth, and Raheny. The estimated cost of the first of the schemes for the acquisition of land is £3,740; for fencing, £160; for legal, engineering, and other incidental expenses, £100; total, £4,000. Under the second schedule it is proposed to acquire compulsorily plots of land in the same districts, and the erection thereon of 200 cottages. The cost of acquiring the land was estimated at £16,200; the fencing, £1,045; the building of the cottages, £30,305, and the expenses, £1,236; total, £48,786.

A stained-glass window to the memory of the late Mr. James Carlyle has been erected in St. Stephen's Parish Church by Mrs. Carlyle. The work was entrusted to Miss Purser, whose well-equipped workrooms and studio in Pembroke Street have turned out excellent specimens of this branch of Irish art. The subject is "Christ Among the Doctors," St. Luke ii., 26, and the design is by Miss Elvery. The window is a very admirable piece of art workmanship. The face, expression, and attitude of the Divine Child are conceived with singular judgment, and executed with becoming grace. Equal happiness is seen in the expressions and features of the listening elders. There are some effective details in the background, too, and the perspective is very good. The execution in stained glass has been carried out with the skill and finish which characterises most of Miss Purser's work. The colours are well chosen and harmoniously blended, and the shadow effects are treated particularly well. The lead joinings in no way interfere with the artistic beauty of the work. It is a strong, richly executed window, which adds much to the church's store of stained glass. The inscription at the base is, "In Loving Memory of James Carlyle. Died December 28th, 1906. Erected by his sorrowing widow." The memorial occupies the central position in the south aisle of the church.

Tenders are invited for the erection of a new chapel, dormitories, etc., at the Dominican Convent, Eccles Street, Dublin. Bills of quantities for the proposed works may be had on application to Mr. D. W. Morris, surveyor, 68 Harcourt Street, Dublin. Messrs. Doolin, Butler and Donnelly are the architects.

Tenders are at present being obtained for re-building No. 10 Newmarket, for Messrs. Kraft and Hornung, Mill Street. Mr. James H. Webb, M.R.I.A.I., is the architect.

Messrs. McLaughlin and Harvey have at present the following work in hands:—Alterations at Clonsilla Lodge, the residence of Mr. Howard St. George; alterations to Drumree, residence of Mr. T. B. Donnelly; alterations to Killiney Castle, residence of Mr. Ormsby Hamilton.

Messrs. H. and J. Martin are at present carrying out extensive alterations at the Yorkshire Insurance Co., the company having taken over the premises of the old National Insurance Co. in College Green. The work consists in the fitting out of a handsome suite of offices for the new company. Messrs. Waygood and Co., London, are putting in an electric elevator. The work is under the supervision of Sir George Moyers.

Dundalk.—At their meeting on the 30th inst. the Rural Council will consider tenders for building twelve single

labourers' cottages, four double labourers' cottages (8), and for fencing twenty plots.

Dundalk.—Tenders have been received for building a dwelling-house on Point Road for Mr. Thomas Mulholland. Mr. John F. M'Gahon, Roden Place, Dundalk, is the architect.

Curtroe.—The ceremony of the dedication of the new church at Gurtroe was performed by his Lordship the Most Rev. Dr. Browne, Bishop of Cloyne. The church is a Gothic structure of the early pointed type, about one hundred feet in length, in width thirty-five, and height, to the ridge, forty-two, built by Messrs. M. Murray and Son, Youghal, the windows being glazed by James Watson and Co., Art Works, Youghal. It is a simple, but yet dignified, building, possessing a beautiful situation, and complete in every detail.

Kingstown.—Mr. Edward Warren, Blackrock, is at present re-building the premises at 57 Upper George's Street.

Kildare.—Messrs. McLaughlin and Harvey, Dublin, are at present building a new stud farm at the Curragh for the Duke of Westminster. Messrs. Kaye-Parry and Ross are the architects.

Additions are about to be made to Lumville Manse, Curragh, for H. M. Commissioners of Woods. Mr. James H. Webb, M.R.I.A.I., is responsible for the plans.

Listowel.—Tenders are invited for the execution of certain works comprised in the erection of new chancel, side chapels, aisles, etc., to the Catholic Church, Listowel, according to the plans prepared by Messrs. Ashlin and Coleman, architects, Dublin. Bills of quantities have been prepared by Mr. D. W. Morris, surveyor, 68 Harcourt Street, Dublin. Tenders close on the 4th prox.

Monaghan.—At a special meeting of the Rural District Council on Monday last tenders for the erection of seventeen single labourers' cottages were considered and disposed of. The following contracts were declared:—Mr. Michael McEntee, contractor, Coohy, Ballybay, cottage in Carrickanure at £119 8s.; a cottage in Lennon at £108 19s., and a cottage in Ednaferkin at £119 8s. Mr. William Nesbitt, Derryallery, Tullycorbett, contractor, cottage in Creene, £122. Mr. Edward Boyle, Bough, Cootehill, cottage in Mullanockan at £135. Mr. Patrick Graham, cottage in Golrea at £124 10s. Mr. Robert Guthrie, Innashawn, Rosslea, cottage in Kilcorran at £134. Mr. John McGorman, Tattynadonagh, contractor, cottage in Corbottam at £119 10s.; same contractor, cottage in Derryledigan £133; same contractor, cottage in Eldron £117 10s.; same contractor, cottage in Tullyberin at £127 10s. Mr. Joseph Beggan, Annagoes, cottage at Garron, Tyholland, £127 4s. 5d.; same contractor, cottage at Corrymeegan, £127 13s. 8d. Mr. Patrick Graham, Drumgoole, for cottage in Cloncow, £132 10s.; same contractor, for cottage in Screagh, £134 14s. 9. Mr. John McClelland, Garronroe, Stranoodan, for cottage in Corlatt, £138, and Mr. John McCooley, Grageragh, Loughmoone, Castleblaney, for cottage in Ballinagall, £129 10s. The total amount contracted for the seventeen cottages was £2,150 in round numbers.

Newtownhamilton.—Tenders have been received for alterations and seating of the Presbyterian Church, Newtownhamilton, County of Armagh. Mr. S. Wilson Reside, Margaret Square, Newry, is the architect.

Navan.—Mr. R. J. Pack-Beresford, Local Government Board Inspector, sat in the Boardroom of the Workhouse and took evidence relating to the improvement scheme made by the Navan Rural Council under the Labourers Act, 1906. The Clerk gave evidence as to the number of representations, loans outstanding, valuation, etc. There were 301 cottages already built, and the rents charged were 10d. and 1s. 1d. The total loss per year to the ratepayers on account of the schemes already promoted was £1,639 5s. 4d. The average annual loss on each cottage was £5 9s. The amount of the loan now applied for was £28,841 8s. It was proposed to give 102 additional plots. Mr. Anthony Scott, the Council's architect, gave evidence as to the cost of the cottages, viz., erection, £146; sites, £40 an acre; legal, engineering, and other costs, £14 2s.; total, £201 3s. The Inspector said the Local Government Board wanted the estimate reduced to £180. Mr. Scott said the estimate could be reduced to £180, and still have four-roomed cottages, but he did not think the Council would consent to alter their plans to three-room cottages. They would think it would be a retrograde movement.

Newry.—As will be seen from an announcement in our advertising columns, tenders are invited for the erection of showrooms and warehouses for Messrs. Rea and Ross, Hill Street, in accordance with the plans and specification prepared by Mr. W. S. Barber, M.R.I.A. Tenders close on the 24th inst.

Rathdown (Co. Dublin).—The Board of Guardians of the

Rathdown Union will, on Wednesday, 25th September, receive tenders for works to be done in providing and fixing new drying horses in the laundry of the workhouse; also to repair ceiling of drying room, etc., in accordance with the plan and specification prepared by Mr. G. T. Moore, A.M.Inst.C.E.

Schull.—Tenders are invited for the erection of a convent for the Sisters of Mercy at Schull, Co. Cork, from the plans and specification prepared by Samuel F. Hynes, F.R.I.B.A., 21 South Mall, Cork, with whom sealed tenders are to be lodged on or before 25th September, 1907.

Skibbereen.—The contract for the Parochial Hall, Skibbereen, has been secured by Messrs. Jermyn and Son, builders, Skibbereen and Bantry. W. H. Hill and Son, Cork, are the architects.

Timoleague (Co. Cork).—A new parish church is being erected in Timoleague, to replace the existing antiquated building. The design of the new church was entrusted to Mr. M. A. Hennessy, Cork, whose work in church architecture may be seen in the noble edifices of St. John's, Limerick, Holy Cross, Charleville, Kilcoe, Durrus, besides many other ecclesiastical and conventual establishments scattered throughout the country. The design of the church shows that our native architecture is capable of adaptation to the needs of the present day, for though purely Celtic found its last expression in the magnificent chapel of King Cormac on the Rock of Cashel, no one could expect that a mere copy or enlargement of that example would suit the needs and requirements of the present day. A pleasing feature in connection with the work is that all the materials used will as far as possible be Irish, and the labour, skilled and unskilled, local. The contractor is Mr. Murphy, of Bandon, who has had a long experience in such matters, and he has made very satisfactory progress with the work for the past few months.—(Communicated.)

Wicklow.—Mr. William Mahony, Bannow, is at present building a new National Infant School at Tinahask, in connection with St. Saviour's Parish. The plans have been prepared by Sir George Moyers, 17 Nassau Street, Dublin.

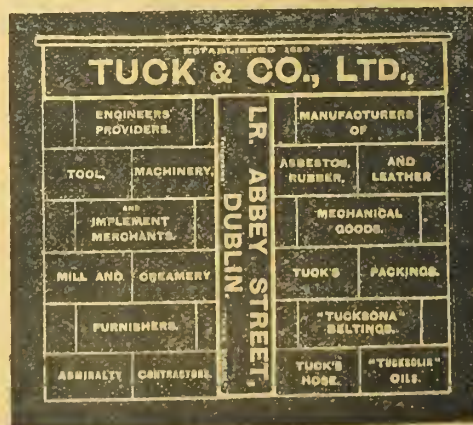
LABOURERS' COTTAGES IN COUNTY GALWAY.

Mr. Albert Cagney, Local Government Board Inspector, has just completed a three days' inquiry in the Glenamaddy Union, respecting an improvement scheme promoted by the District Council, under the Labourers Acts. The present scheme, which provides for 182 cottages, at a total cost of £35,038, would not, the Clerk of the Union stated, satisfy the demand.

BISHOP'S THRONE, KILLARNEY CATHEDRAL.

Messrs. Patrick Tomlin and Son, sculptors, Grantham Street, Dublin, have just received a commission to execute a bishop's throne for Killarney Cathedral, for the Most Rev. Dr. Mangan, Bishop of Kerry.

The throne is designed in the late Gothic style, and is a very elaborate piece of work, being heavily moulded and richly carved, and having a groined canopy. On the outer angles are niches containing statues of saints, and supported by clustered shafts of coloured marbles, with caps carved in high relief. At the back of the throne is a large and sculptured panel, in the centre of which will be the arms of the diocese. This work is being executed from the designs of Messrs. Ashlin and Coleman, architects, Dublin.



ENGINEERING SECTION.

ITEMS.

The Lusitania, the latest ocean greyhound, is confidently expected in time to win back to these islands the blue ribbon of the Atlantic, held for many years by Germany. With a crew of 827 and 2,300 passengers, she is veritably a floating town. Her fittings and accommodation are equal to those of a first-class hotel in any large city, and in length, tonnage, and speed combined, the new vessel has no equal. And yet seventy years have not elapsed since the paddle-boat Great Western, of about 1,400 tons, took fifteen days to complete the run to America. Less than half-a-century ago the Scotia, of 3,800 tons, made a vast reduction in time, the journey taking but nine days, much to the astonishment of that generation. But when, in 1889, the City of Paris broke all records by crossing in six days, it was considered that the end was attained, and that engines could not be designed to effect a further diminution. But the recent vast increase in the size of the vessels, and the many modern engineering inventions by which fuel is economised, stoking simplified, plant improved, and every ounce of value obtained from steam, have resulted in a gradual decrease in the time occupied in the passage, the Lucania having made the trip in under 5 days 8 hours, and the German vessel in something less. The invention of the turbine engine is, however, undoubtedly the beginning of a new era, and it would be idle to prophesy the length of time any speed record will be held. The Lusitania is 785 feet long and of 70,000 horse-power, and with her four funnels, some 155 feet in height above her keel, is a wonderful triumph of marine engineering. Her speed trial averaged 25½ knots for a continuous sea run of 1,200 knots, and while Great Britain will undoubtedly regain at length her superiority in the merchant service, she will also have, in less peaceful times, one of the swiftest cruisers in the world.

* * * *

The State railway authorities are about to grapple with the question of the conversion of the Berlin street railway systems to electric traction. The project has been under consideration for a long period, and it is perhaps no credit to "State control" that Berlin should in her popular means of communication lag so far behind other large and populous centres. In the terms of a recent order, the first portion of the scheme will deal only with the city and circle railways and the inner suburban lines, the power station for which will be created in the suburbs to supply current for traction purposes and light and power over a large area of industry. The present work will occupy about six years, after which the second portion will be proceeded with, and the whole of the lines will be converted to electric traction by 1920, a date which would appear to be sufficiently remote even for such a vast undertaking. The cost will be about £9,000,000, and it is anticipated that the improved service will so increase the traffic that further lines will become necessary, either shallow underground routes, or that American abomination, the elevated railway.

* * * *

Paris, which is generally considered to be essentially "modern," is somewhat behind the age in the methods adopted for refuse destruction. The present practice generally is to cart the refuse to the suburbs, where it is dried, compressed, and converted into manures for the surrounding agricultural districts. In 1895 a small experimental destructor was erected at the Javal municipal workshops, at a cost of about 25,000 francs, the cells being a modification of the Fryer type. Fairly satisfactory results were obtained, but the plant was not extended, and the refuse disposal difficulty has since confronted the municipal engineers and those interested in public health. However, fresh proposals are now under consideration, and as the destructor has since become a feature of practically every municipality that can afford its erection, it is probable the Parisians will shortly have one type or another introduced into their city. The heat obtained from the furnaces is, as usual, to be utilised for power purposes.

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In connection with refuse destruction, it is interesting to note that at Nelson a new corporation brick-making plant was installed formally on Wednesday, 11th inst., by which the waste product of the refuse destructor will be utilised. The plant has a productive capacity of 15,000 bricks weekly, which are made from the clinker obtained from the furnaces. About eight per cent. of lime is added after the clinker is

placed in the grinding machine, where it is reduced to powder and thoroughly sieved. It is then conveyed to a steam mixer, and the lime having being slaked, the compound is allowed to stand for a time, it being then of the consistency of blue loam. A special machine is utilised for pressing and moulding, and the bricks are finally subjected for a period of eight hours to a temperature of 120 deg. Fahr. The price of the bricks is said to be some 18 per cent. less than that of ordinary stock bricks, and yet to be saleable at such a profit that there will be considerable return on the initial outlay of £3,000 for plant. In connection with the scheme is a solder recovery plant and a tin baling press. The solder extractor is a furnace in which the disused tins arriving at the destructor are placed. Solder is extracted to the extent of about 50 lbs. per ton of metal treated, and is marketable at 8d. per lb. After this process the tins are placed into a press and formed into bales, which are disposed of at about 12/6 per ton.

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An interesting feature of American electric supply companies is the amount of time and trouble which is spent on experiments in order to obtain efficient and economical methods of lighting. Nearer home it is the customers who are obliged to do any necessary testing by an often dearly bought experience. It is only recently that the New York Edison Company fitted up their general office with their different forms of illumination, carefully tested each method, and published the analytical results for the benefit of the consumer. The first system of lighting tried was cove, or concealed, lighting, the installation consisting of 280 16 c.p. clear lamps placed horizontally eight inches apart, in a recess on the side walls 4 ft. 9 in. below ceiling level, in a room of two sections, one about 37 feet long, by 25 feet 8 inches wide, and 28 feet 6 inches high, and the other measuring 51 feet long, 23 feet 8 inches wide, and 23 feet 3 inches high. The second method consisted of ordinary ceiling lighting, obtained from two rows of incandescent lamps, forty-two in each row, placed along the ceiling with tip downwards, and equipped with holoplane concentrating reflectors. The third system comprised six holoplane clusters, two carrying 100 watt Gem lamps, and four carrying ordinary 16 c.p. lamps. The result of the measurements of the illumination was measured on a horizontal plane, thirty inches above the floor, and were, according to the *Electrical Review*, of New York:—

Area, 1,221 sq. ft.

Volume, 28, 388 cb. ft.

		Cove.	Ceiling.	Clusters.
Watts per sq. ft.	...	7.47	3.41	1.96
Watts per cb. ft.	...	0.321	0.147	0.0842
Candle-power per sq. ft.	...	2.41	1.1	0.71
Candle-power per cb. ft.	...	0.104	0.0473	0.0304
Average foot-candle per watt	...	0.00042	0.00131	0.00091
Average lux per watt	...	0.0045	0.0141	0.0098

* * * *

It will, therefore, be seen that taking the ceiling light as 100 per cent. efficiency, the cove lighting works out at 32 per cent., and the cluster lighting at 60 per cent., the latter figures being possibly lessened by a lack of symmetry in the installations. The general conclusions arrived at as a result of the test may be scheduled as follows:—

1. Diffused lighting, while very attractive and avoiding damage to the eye, due to high and uniform brilliance, is somewhat trying, because there is no restfulness from the uniformity of the brilliance.
2. The absence of shadows is noticeable and unpleasant.
3. The walls were relatively brilliant under the diffused lighting as compared with ceiling lighting.
4. Direct lighting, even when diffused, is offensive to the eye.
5. Much higher illumination is necessary for direct lighting.

* * * *

Having thus published the results of the experiments, this American firm proceeds the necessary step further, and suggests the proper remedies in order to get over the defects of both systems, and these are:—

1. To place the lamps in ceiling bays behind ground glass, so that the light is well diffused, although the source is not concealed.
2. To use deep reflectors where the light itself is not visible.
3. To adopt a combination of the cove lighting with low

power lamps and direct lighting with high-power lamps. The diffused lighting would have a softening effect on the direct glare, while the efficiency of the system would be higher than with a simple cove system.

* * * *

The table, and the conclusions deduced from them, will undoubtedly prove useful to electrical engineers, and form together an excellent basis for further experiments. The subject of efficient lighting, especially of large halls, is one of great fascination, especially when economy has to be borne in mind. It is to be hoped that similar demonstrations will be carried out by the companies at home; no better advertisement could be devised, a truth which the more wide awake gas companies have long since discovered.

* * * *

Those who attended the highly successful machinery exhibition held at Olympia last year will doubtless take care not to miss the forthcoming display of mechanical and engineering appliances, to be opened in the same hall on September 19th. Over 300 firms will be represented, amongst them being machine tool builders and exhibitors of engineering specialities, such as lubricators, lubricants and packings. Those interested in power plant will be able to weigh the relative values of reciprocating and turbine steam engines, and the results obtainable from the use of oil, gas, and petrol. We are glad to observe that a patents' section has been incorporated, which will be interesting to the engineering world and the public alike. This section will be illustrated with diagrams and models, and should prove encouraging to the inventor, who, through lack of means, frequently has to hide his light under a bushel. The excellent collection of engines and appliances on view in the Machinery Hall at Herbert Park should whet the appetite, and cause many to cross the Channel to see the still larger and more representative exhibition in London.

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Brickwork is, after all, not to be ousted by reinforced concrete, according to Mr. W. H. Brown, of York, who has been experimenting with walls constructed of the ordinary brick, in the horizontal mortar joints of which wire netting is laid. The action of this wirework with the weight of brickwork above it is such that, when resisting a tensional stress in the direction of its length, the natural tendency of the wire to elongate and reduce its sectional area is resisted by the mortar which has become locked in the meshes. Mr. Brown sums up some of the results of his tests as follows:—(1) That by reinforcing of its mortar joints, brickwork can be rendered as monolithic as reinforced concrete, instead of being a number of units more or less indifferently assembled; (2) that brickwork so reinforced shows even better results than either steel or reinforced concrete; (3) that the metal being of small section, well distributed throughout the area of the joint, and so perfectly protected between the courses of the brick, there is no expansion of the metal in case of fire.

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Many engineers are somewhat sceptical of the claims of reinforced concrete to be all that the patentees so insistently assert, and such scepticism in a far greater degree will undoubtedly be extended to monolithic brickwork. But it must be encouraging to the brickmaker and the jerry-builder to find that the old-fashioned material may yet prove a possible rival to the much advertised ferro-concrete construction.

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COAST EROSION.

England has surrendered 524 square miles of her territory to the waves within the last 1,000 years. More recently the advance of the waters has been much more rapid, averaging for the last forty years 1,523 acres a year.

The ravages of the sea in 1903 were almost unprecedented. Many historical towns, such as Ravensburgh, where Henry IV. landed in 1339, have been submerged. Off the Yorkshire coast alone there are twelve submerged towns and villages. Between Flamborough Head and Kilnsea an area equal to that of London has been devoured by the waves since the Roman Invasion. The erosion here is so continuous that the outline of the coast is never the same on two consecutive days.

There is an anchorage off Selsey, Sussex, still called "The Park," because it was a Royal deer park in the reign of Henry VIII. The Goodwin Sands, so much dreaded by navigators, was the 4,000-acre estate of Earl Goodwin, until it was inundated by a great wave in 1099. In June, 1868, the sea advanced inland 200 yards at Cromer during a single gale.

SAFE LOADS ON VARYING SOILS.

The safe loads to which various soils may be subjected is always a matter of major importance to the engineer, and although there are tables to which he may refer, yet each case must, in a great measure, be judged on its merits. For not only do the soils differ materially in themselves, but the interspersing of other beds, the possibility of percolation of water, and the depths to which the foundations are to be carried, are all important factors in the case. It is, therefore, desirable in structures of importance to place the foundations under actual test, and this is all the more necessary if there be a variation of soil over the area, when equal distribution of weight is essential to prevent subsequent unequal settlement. Professor Adams says that surface clay should never be built on deep clay, the foundations being not less than 10 feet from the surface; also gravel and compact earth may be loaded with 3 tons to the square foot. Light earth and sandy loam will carry from $\frac{3}{4}$ to $1\frac{1}{2}$ tons per square foot, according to local conditions. Chalk in its natural formation will bear 3 tons per square foot, but chalk rubble over loose earth will carry but one-fourth of this. A substantial thick layer of gravel will bear 5 tons per square foot, which should, however, be reduced to 3 tons if interspersed with clay beds. Gravel, with an underlying bed of chalk, may be taken as bearing 7 tons. If there be much sand in the gravel, and a possibility of water percolating through, the weight must be reduced to $1\frac{1}{2}$ tons, as the foundation is of a treacherous nature. An approximate formula to determine the resistance of the soil to superincumbent weight is

$$P = \frac{\theta^2}{4000} \times d,$$

where P = safe load in tons per square foot on the base of the foundation, d = depth in feet below surrounding surface, and θ^2 = angle of repose or natural slope of the earth in degrees. This angle of repose may be taken as follows in degrees:—Peat, loose, 14; firm, 45. Clay, dry, 29; well drained, 45; wet, 16. Vegetable earth, 28; garden mould, 30; dry sand, 38; shingle, 39; average gravel, 40; compact earth, 50; and chalk, 55.

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THE BRIDGES OF PONTYPRIDD.

Before the middle of the eighteenth century the arched bridge built for highway traffic across the River Taff failed owing to the excessive weight of the haunches, which forced up the crown of the arch. William Edwards, a stonemason, then undertook the construction of a new bridge, which was completed in the year 1750, and remains to the present day a monument to the intuitive genius of its designer.

This bridge is a stone arch of 140 feet clear span, having spandrels, each pierced by three transverse cylindrical openings. Around it grew up the village which took the name of Pont-y-pridd, or Newbridge, from the new bridge, and ultimately developed into the thriving town of Pontypridd.

In the year 1857 a three-arched bridge was thrown across the river close to the famous structure built by Edwards, and to-day a third highway bridge, embodying the most modern development of constructive science, is in course of erection to the north of the same historic work.

The latest bridge was designed by Mr. P. R. A. Willoughby, C.E., in accordance with the Mouchel system of ferro-concrete, which is now being applied very extensively in place of masonry and steel work to the design of highway, tramway, and railway bridges in various parts of England and Wales, owing to the lower cost and greater durability of the material and the total avoidance of the heavy charges for painting and repairs inseparable from iron and steel construction. The new bridge, comprising a centre span of 116 feet, and two end spans of 25 feet each, will have the total length of 172 feet and the width of 25 feet between parapets. Operations were commenced by the contractors, Messrs. Henry Page and Co., of Cardiff, in July last, and before long Pontypridd will be able to show side-by-side three successive examples of progress in bridge building, the latest including the longest span ferro-concrete arch hitherto constructed in the United Kingdom.

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Mr. J. Elliott, builder and contractor, Belfast, in renewing his subscription to the IRISH BUILDER, writes us:—"I find the paper very interesting, and consider it splendid value."

NEW FIRE BRIGADE STATION, DUBLIN.

Last week the new Central Station of the Dublin Fire Brigade was declared open. It marks practically the completion of a scheme by which Dublin will be equipped with a thoroughly up-to-date fire extinguishing system. The new building at the corner of Tara and Great Brunswick Streets will form the chief station for the whole area now comprised within the recently extended city boundary. From it all the operations of the Brigade will in future be directed and controlled, and it will also act as a training school for the firemen, its central and convenient situation giving immediate access on broad thoroughfares to every part of the city, affording every desirable facility for the attainment of all the ends in view. The building covers over half an acre, and was erected at a cost of £21,840, the whole structure being set off by a bold clock tower, rising to a height of 125 feet above the main entrance at Tara Street, and surmounted by a "look-out" balcony, from which an excellent view of the city and suburbs can be obtained. The scheme, of which the Central Station is the most important part, provided for the erection of district stations at Buckingham Street, Dorset Street, and Thomas Street. The last-named one has not yet been erected, but the site has been acquired, and when this additional building is completed the present makeshift station at Winetavern Street will be abolished. The opening of the new station marked the end of Chatham Street premises as the headquarters of the Brigade. The old headquarters will not be used for fire-extinguishing purposes any longer, and, indeed, their awkward situation in the matter of speedy egress always made them a most unsuitable spot for the work of the Brigade, while their limited space prevented adequate accommodation being provided, especially for the married men. The opening ceremony took place last week, and the guests, including the Lord Mayor, were received in the station by Mr. J. M. Coghlan Briscoe, on behalf of the Waterworks and Fire Brigade Committee, of which he is the chairman. Captain Purcell, the efficient Chief of the Brigade, and Mr. C. J. McCarthy, City Architect, who were jointly responsible for the arrangement of the building, were also present. The watching and engine rooms, the stables, laundry, and workshops, where minor repairs are carried out, having been inspected, Mr. Briscoe extended a cordial welcome to all present, and said the new Central Fire Station was in every respect worthy of the metropolis. Having visited the fire stations in the chief towns of England and in many Continental centres, he was glad to be able to say that none of them surpassed the Dublin Station. In fact, in many respects, but especially in that of electrical and time-saving equipment, they in Dublin were far ahead of other places. This was largely due to the Chief of the Brigade, who was a practical engineer and electrician, and the Corporation in having the benefit of his experience and advice had been able in working out the details of the station to save the ratepayers a very large sum of money. By utilising man's latest servant, electricity, their Central Station was in touch with every part of Dublin, and by placing automatic communications in the large warehouses and factories the enemy, fire, was compelled to send an electric message telling of its presence. The station reflected the highest credit on their esteemed City Architect, and on Messrs. Jas. Donovan and Son, the eminent firm of contractors. He (Mr. Briscoe) deeply regretted that the head of that firm passed away just as his work of building the station was completed; but in the Central Fire Station of Dublin Mr. Donovan had left a splendid monument of his ability. The building had been carried out entirely by Irish hands, and he might mention that the electrical and other fittings, manufactured in Dublin under the direct supervision of Chief Purcell, were a credit both to the contractors and to the workmen. In a city like Dublin, which had so many tenement houses, it was of paramount importance that they should have an up-to-date Brigade, capable of dealing with any outbreak and of saving the lives and property of the citizens. Such an equipment they now possessed. There was a time, in the memory of the oldest citizens, when the City of Dublin had no organised brigade, when the citizens had to depend for protection on the parish engines, or squirts as they were then called. The old manual engines were kept at the parish churches. The police, the Corporation, and some of the insurance companies had each an engine; but he (Mr. Briscoe) found from the old records that in most cases the fire had to burn itself out. In the year 1850 there were several disastrous fires in Dublin, and many lives were lost. They found then the first organised attempt at protection. Five fire escapes were purchased and placed at the churches, men being in charge of them during the night-time. Ten years later, in 1861, the Kildare Street Club was burned down; many were injured, and three persons perished in the flames. Then the Corporation took action, and it was mainly due to Sir John

Gray that, in 1862, the Dublin Fire Brigade Act was passed. Since then, under the command of Captain Ingram, Captain Boyle, and their present trusted Chief, Captain Purcell, the Brigade has grown in strength and efficiency. In forty-four years it has attended 12,612 fires. It has saved the lives of 142 persons and £12,000,000 worth of property, which otherwise would have been destroyed. The building is heated by steam, and the appliances are of the most modern pattern. The clock in the tower was supplied by Messrs. Ganter Brothers, 63 South Great George's Street. It has four dials. The escapement is made to the design of the late Lord Grimthorpe. Messrs. C. M'Namara and Son, Cork Hill, supplied the sanitary work, plumbing, and steam heating apparatus; Messrs. Cummins and Son, Lower Abbey Street, were responsible for the electric lighting installation; the brass work and time-saving fittings were supplied by Messrs. Curtis, Middle Abbey Street; the annunciator board, signalling apparatus, and bells were supplied by Messrs. Egan and Tatlow, Fleet Street, and the iron and steel work by Messrs. J. C. M'Gloughlin, Ltd., Great Brunswick Street.

IMPORTS.
Port of Dublin.

- September 4.—Per Penrhyn, from Middlesbro', 340 tons cement, J. P. Corry and Co. Per Lady Hudson-Kinahan, from London, 100 sks. cement, J. Kelly and Son.
- September 5.—Per Esmeralda, from Lundsval, 36,217 pcs. planed boards, 14,326 pcs. battens, J. Kelly and Son.
- September 6.—Per Winga, from Goteborg, 3,600 bdles. laths, 220 pcs. doors, to order.
- September 7.—Per Lady Wolsley, from London, 900 sks. cement, Barton and Co.
- September 9.—Per Ramore Head, from New Orleans, 2,087 pcs. gumwood sawn, 271 bdles., 217 pcs. firwood sawn, 400 pcs. sawn fir timber, to order. Per Dinorwic, from London, 270 tons cement, Brooks, Thomas and Co., Ltd. Per Result, from Belfast, 180 tons bricks, H. and J. Martin, Ltd.
- September 10.—Per Velinheli, from Port Dinorwic, 100 tons slates, W. and L. Crowe, Ltd.
- September 11.—Per Lady Martin, from London, 1,000 sks. cement and 40 kegs white lead, T. Dockrell, Son and Co., Ltd.
- September 12.—Per T. & E.F., from Connah's Quay, 30 tons bricks, Henshaw and Co. 20 tons do., A. Agnew. 19 tons do., J. C. Parkes. 30 tons do., F. Keegan. 10½ tons do., D. P. Hoctor, Birr.
- September 16.—Per Inishowen Head, from Montreal and Quebec, 197 pcs. firwood and 17,100 pcs. deals, to order. Per City of Brussels, from Hamburg, 1,017 cakes asphalt, 12 brls. asphalt, to order.
- September 17.—Per Irene, from Bridgwater, 140 tons bricks, T. Archer. 20 tons bricks, Brooks, Thomas and Co., Ltd. Per Lady Roberts, from London, 1,500 sks. cement, T. Dockrell, Son and Co., Ltd.

CHRISTMAS PRESENTS.

With a view to ascertaining the position of firms in reference to Christmas presents, the following interesting letters have passed between Mayor, Sworder and Hanks, Ltd., cigar and wine shippers and merchants, and the Attorney-General:—

August 12th, 1907.

DEAR SIR,—We have been in the habit for many years past of giving Christmas presents of boxes of cigars to our customers or to their representatives. We shall be much obliged if you will advise us as to whether the giving of such presents is prohibited by the new Act.—Awaiting the favour of your reply, we beg to remain, dear sir, yours faithfully,

MAYOR, SWORDER & HANKS & CO., LTD.

The following is the reply of the Attorney-General:—

House of Commons, August 13th, 1907.

DEAR SIRS,—The Attorney-General wishes me to say in reply to your letter that he cannot be taken as expressing an opinion, but it is clear that Christmas presents which really have that character, and are openly and honestly given as such, cannot be within the Act.—Yours faithfully,

F. C. HEMENSLEY.

Messrs. Mayor, Sworder and Hanks and Co., Ltd.

—Master Builders' Association Journal.

Among those upon whom honorary degrees were recently conferred at Oxford, was Mr. George Frederick Bodley, R.A., F.R.I.B.A., who was described as a descendant of the founder of the famous Bodleian Library.

ENGINEERING NEWS.

Antrim.—The Urban District Council of Portrush invite tenders for a complete lighting installation for the town, either by gas or electricity. Plans and specifications have been prepared by Mr. John Woodside, A.M.I.E.E., Belfast. Tenders close 2nd November.

Clonmel.—We hear the contract for the electric lighting of the Clonmel Asylum has been given to a Liverpool firm.

Carlow.—The Board of Guardians will, on the 3rd prox., consider tenders for the carrying out of a system of drainage, sewage disposal, high-pressure water supply, plumbing, the erection of eight sanitary annexes, conversion of existing privies and sanitary accommodation, etc., at the Carlow Workhouse, in accordance with plans and specifications prepared by Mr. James O'Donnell, As.M.Inst.C.E.

Callan.—The Callan District Council are taking the necessary steps to provide and supply electricity, electric current, and lighting for public and private purposes within the area of the township of Callan. Mr. Lanigan, solicitor, stated the amount required to be borrowed would be about £1,500. The estimate for the work would be about £1,200, and £300 for incidental expenses.

Co. Down.—Messrs. James Lowden and Co., of Belfast, have been appointed contractors for the carrying out of the sewage purification and disposal works at Down District Asylum. The works, which are extensive, have been designed by Mr. James Heron, B.E.

Dalkey.—The Dalkey Urban Council have accepted the tender of Messrs. A. J. Main and Co., 11 Leinster Street, for the erection of a paling round Vico bathing place.

Foxrock.—The Local Government Board have sanctioned an extension to the Foxrock sewage from Cornell's Court to Whitecross, along the Dublin Road. The plans and specifications have been prepared by Mr. P. H. McCarthy, B.E., and tenders will be invited at an early date.

Keady.—At the meeting of the Keady Urban Council, a discussion arose as to increasing the proposed loan of £600 for improving the water supply to £700, and eventually the Clerk was empowered to make an application to the Local Government Board for the extra loan.

Tyrone.—Sundry improvements have been recommended to be carried out at the Strabane Infirmary, according to plans prepared by the engineer, Mr. Stewart. It is also recommended that sanitary improvements be carried out simultaneously at the Fever Hospital.

Tralee.—The Camp Viaduct, on the Tralee and Dingle Railway, County Kerry, is about to be superseded and the line diverted to a less dangerous curve. Towards the work a Parliamentary grant of £23,000 has been made. It was here in 1893 that a train laden with pigs ran away and dashed over the viaduct into the river, seventy feet below, most of the animals and three persons being killed.

TENDERS.

Ballybay.—Sewage works at Ballybay, for the Castleblayney Rural District Council. Mr. F. Bergin, B.E., 36 Westmoreland Street, Dublin.

R. Smith	...	...	...	£2,877	14	9
Grainger Bros.	...	...	...	2,859	16	11
J. Wynne	...	...	...	2,838	15	0
J. Callan	...	...	...	2,838	12	10
P. Ritchie, Belfast (accepted)	...	...	...	2,323	0	0
J. Loudon and Co.	...	...	...	2,297	12	7

THE STEEL TRADE.

While the building trade has been phenomenally depressed of late, the price of materials has gone up. The other day a conference of the steel makers of South Wales and the English Midlands was held to consider the threatened competition of the American Steel Corporation, and the continued and increased imports of Continental steel. The makers came to the conclusion that there was no immediate need to fear the foreign competition, this year at all events. The English makers are full of orders, and express themselves as unable to keep pace with the demands of the trade, and make the rather curious declaration that they would rather welcome, than deplore as a disaster, the importation of some thousands of tons of American steel. The makers are not so sanguine about next year, however, it being said that the vast expansion of the foreign and American works is likely to lead to over-production, and consequent dumping in British free ports. It was decided not to raise the price of steel for the present.

During recent years, for ordinary building purposes, Belgian steel has almost entirely displaced British steel; but for what may be termed the higher grades of work, the latter has pretty well held its own.

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SESSION 1907-1908.

DEPARTMENT OF ENGINEERING.

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By order of the President,

EDWARD TOWNSEND,

1st August, 1907.

Registrar.

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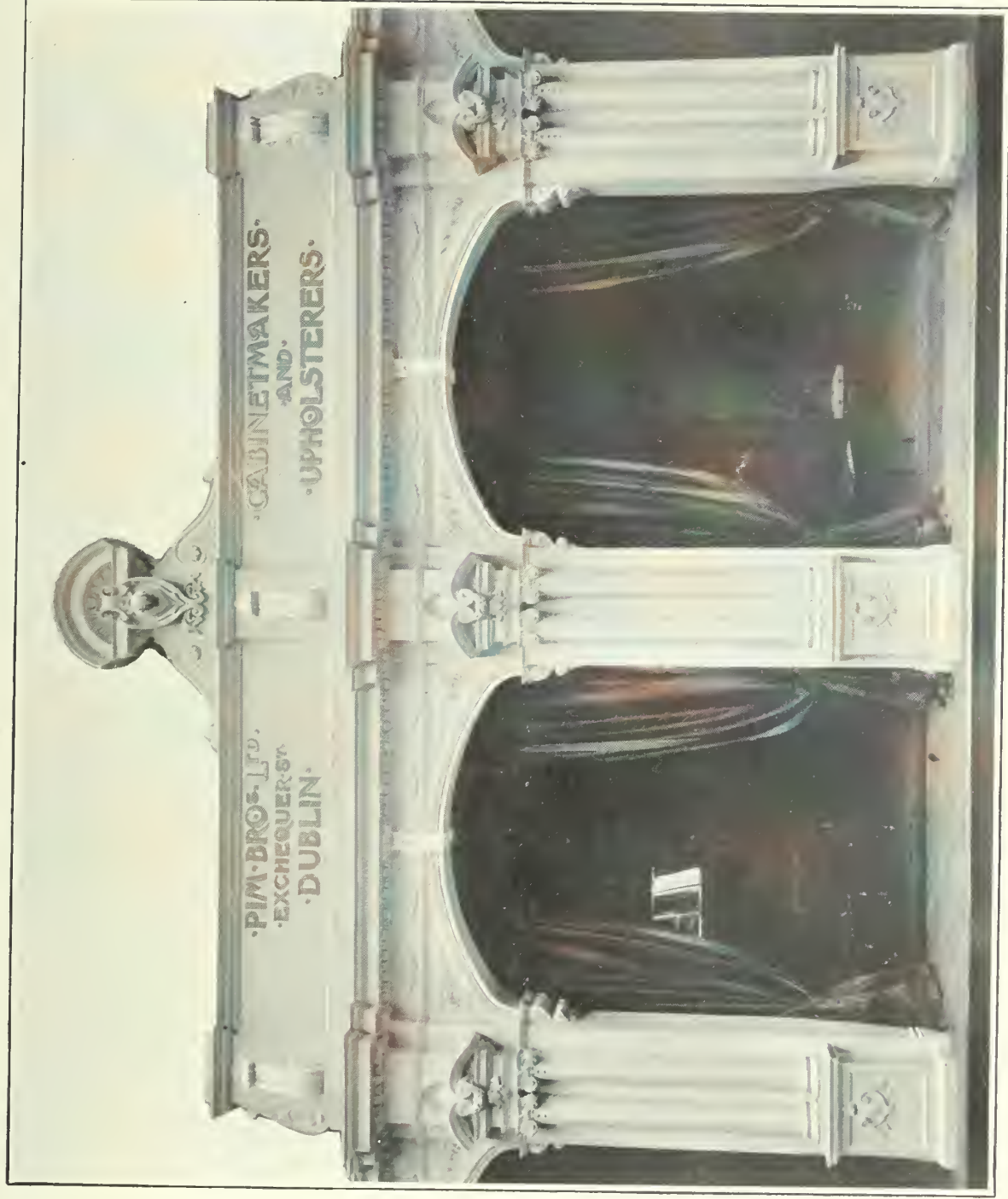
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HEAD OFFICE

October 5, 1907.

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TOPICAL TOUCHES.

Mr. Andrew Carnegie has given £10,000 towards the establishment of a Technical College in Aberdeen.

* * * *

Business in the building trade in Ireland continues very slack. The Board of Trade returns for England show that during August there was "slightly increased" employment in the building trades.

* * * *

The only "watch-house" left in London is situate at the back of St. Sepulchre's Church, in Newgate Street. It dates from 1791, and is now used as a residence for the sexton of the church, whose bell has tolled the death of many a murderer in old Newgate.

* * * *

We notice that the Corporation of Dublin invite tenders for the flotation of loans of £17,210 and £40,000 for the Fairview Sloblands Reclamation and Clontarf Drainage, respectively. With the present low rates of interest prevailing in the money markets, investors might do worse than consider this proposal.

* * * *

An ingenious series of frauds was perpetrated upon architects in England lately; the three prisoners concerned were indicted for conspiracy to defraud and for obtaining by false pretences a cheque for £60 12s. 6d. from a Mr. Kinder, surveyor, and one for £201 from Mr. Houchin, an architect. It was alleged that in the course of journeys by rail to Bognor and Herne Bay ostensibly for the purpose of inspecting building sites, the accused obtained cheques for the amounts mentioned from the prosecutors in payment for alleged losses at cards. Mr. Kinder deposed that the prisoner said that Meggs said he was prepared to spend £60,000 upon an hotel, theatre, and motor garage combined at some seaside resort.

* * * *

The *modus operandi* appears to have been that one of the prisoners would visit an architect, and commission him to design some important building in the country, and an early appointment made to visit the site with the visitors' brother promoters. Meeting at the railway station, one of the "promoters" would suggest "tossing" who should pay for all. The architect invariably lost—though why he should be expected to pay even for himself is not clear. In the train cards would be introduced; sometimes the architect was initiated into some game with which he was not very familiar, and rose at his destination a heavy loser. Several men paid, but the last architect victim declined, and raised such a row that the three prisoners found themselves in the dock.

* * * *

The Recorder of London (who tried the case), said that to sustain the indictment it would be necessary to prove some acts of cheating or dishonesty at cards. The fact that a man was foolish enough to believe all the cock-and-bull stories told him by the prisoners about each other, and was thus induced to play at cards and pay the money lost, always supposing there was no dishonesty or cheating, was not sufficient to constitute a crime. Sir Chas. Mathews, who prosecuted, said the scoring was dishonest. Ultimately the prisoners were convicted and sentenced to nine months' hard labour. We greatly regret to hear that one of the prisoners was a member of a well-known and highly-respected Dublin family, for whom much sympathy will be felt.

The foundation stone of the new Cathedral at Washington was laid on Sunday last, President Roosevelt being present. Mr. G. F. Bodley, of London, is the architect.

* * * *

The *Freeman's Journal* is responsible for the following, and, if true, it certainly is a "crusher." :—

"As a *tu quoque* this is crushing. The Unionists, as mentioned by our London Correspondent, are denouncing Mr. Haldane, the War Minister, for sending a contract for £2,000 for horseshoes out of England. The *Morning Post* is foremost in the attack, but a correspondent points out that the journal's new offices in London are designed by a French architect, erected by an American firm, while the granite has been imported from Sweden, and dressed by Swedish workmen!"

We are inclined to think the *Freeman's Journal* is not accurate about the French architect. We rather think the architects are Messrs. Mewes and Davis, of London, but we are not positive.

* * * *

Writing of roads that will withstand motor traffic, a writer in the *Daily Mail* says :—

"A top-dressing of tar is not so effective as tarred granite, because the dressing, being of the character of veneer, soon peels and is worn off quickly. When tar and pitch are properly mixed with granite it makes a solid surface of about four inches thick, through which it is difficult for rain or other liquids to penetrate—hence a marked durability over the ordinary granite (or limestone), mud, and water roads, so prevalent in most counties. Some surveyors find a stone and soil "road" washed in with abundance of water (!) an economical operation (?), but it is far from durable, as motor tyres suck up all the soil, and the result is a rough, uneven, and depressed surface. If a road is to last no water or soil should be used in its construction, but crushed granite, well blended with pitch and tar, and then well rolled. This becomes something like adamant, and would minimise dust and the wear and tear of cars for years—a really economical treatment in the end."

* * * *

The tarred roads in Rathmines and Pembroke seem to be standing motor traffic pretty well. When will the Dublin Corporation take up the question of the road surfaces seriously?

* * * *

The outrage at Glinaheiry, Lord Ashtown's shooting lodge, has been the sensation of the past month. A good deal of the cross-examination at the subsequent enquiry before the County Court Judge was directed to the point as to whether a certain window was open or closed at the time the bomb exploded. Lord Ashtown's witnesses all swore that it had been securely locked and bolted; while the police inspector and Home Office expert declared their belief that it must have been open at the moment of the explosion. To rebut this Mr. Hackett, County Surveyor of South Tipperary, was examined on behalf of Lord Ashtown, and he put forward the theory that the window had been shut at the time of the explosion; yet, the concussion breaking the glass, the sash was relieved of so much weight, the balance was disturbed, and the sash automatically ascended. If the glass were fairly heavy, the sash finely balanced and running very free in the casings, the probability is that this might occur. No explanation, however, has been published relative to the sash fastener. Was it unlatched, or was it opened by the force of the explosive? It is, of course, quite impossible that the breaking of the glass, while it might release the sash, would force the fastener.

THE APPLICATION OF FERRO-CONCRETE.

Following on our recent observations on the use of concrete and ferro-concrete, the following, taken from an article contributed by Mr. Walter Loring Webb, C.E., to an American magazine, will probably be found of interest to our readers:—

A building material that will not rust or decay, and that will not be subject to the attacks either of insects or of atmospheric acids; that will be fireproof and earthquake-proof, and capable of supporting heavy loads over long spans—a material that has all these virtues and still is not prohibitively costly—such a material would be close to ideal. And the material that most nearly meets these essential requirements, and that is daily undergoing tests with credit, is reinforced concrete.

Building Materials.

The usual building materials fall far short of the above ideal. Wood, in spite of its many advantages, is subject to decay and the ravages of the *teredo navalis*, if it is placed in seawater; it must be frequently repainted, and it is highly combustible. Steel, in spite of constant repainting, will rust unless it is thoroughly protected by concrete. Unless it is thoroughly fireproofed, the heat usually developed by a conflagration is so great that the steel will soften and yield, thus causing the whole structure to collapse. Although stone in the form of building blocks has the great advantage of architectural beauty, it cannot withstand fire, and especially the frequent combination of the great heat of a conflagration and the sudden application of a stream of cold water. The carbonic acid of the atmosphere will speedily affect marble and limestone fronts. Stone is useless for long spans, except in the form of expensive arches, which must have a considerable rise in proportion to the span, and this renders its use inapplicable for all except a limited class of expensive structures. The recent destruction of San Francisco by earthquake shows how helpless the ordinary stone or brick structure is under such circumstances. Brick has nearly all the disadvantages of stone except in degree. A good quality of brick will withstand fire far better than stone, and is unaffected by frost or the carbonic acid in the atmosphere, but its use is absolutely limited to supplying compressive resistance.

The very expensive method of floor construction, using steel I-beams with small arches of brick or hollow tile, which a few years ago was considered to be the only method which deserved the name of fireproof, has been found to be only relatively fireproof; and, in fact, it affords but little protection against a hot fire. It was one of the compensations of the Baltimore fire that it furnished a very convincing test of the relative methods of the various systems of fireproofing which have been devised. The old-fashioned floors constructed of steel I-beams, connected by brick or by hollow tiles, provided little or no protection to a building against its almost complete destruction by the flames. On the other hand, the few existing floors of reinforced concrete were structurally unharmed during that trial.

Reinforced Concrete.

In strong comparison with the qualities of the various building materials enumerated above is the statement of the corresponding qualities of reinforced concrete. It is in no sense subject to decay, and when it is used in seawater for the foundation of a pier or wharf, it is unaffected by the *teredo*, which so quickly destroys timber. It is not affected by rust nor by the carbonic acid in the atmosphere. When properly constructed, it requires no maintenance charge for painting or for any other kind of protective treatment. The various tests, which have been made by the building bureaus of great cities, as well as by the involuntary test of great conflagrations, have shown that its power for resisting fire—and even a combination of fire and water—is greater than that of any other known type of building construction. Although the lower layer of concrete will probably be calcined during a fire, the lower layer will of itself act as a fireproofing material which will prevent injury to the upper layers. Since the area of the lower layer is always regarded in computing the strength of the reinforced concrete, it is always possible after such a fire to scrape off the injured concrete and to replace it with a layer of other material which will again act as a fireproofing material. Structurally, the floor will be uninjured. A brief description of one of these tests will show the remarkable resistance of reinforced concrete to fire.

A Building at New Jersey.

During November, 1905, a building was constructed near New Brunswick, New Jersey, for the special purpose of the test. The roof consisted of a four-inch slab of reinforced concrete, supported on concrete beams. The side walls of the building were made of concrete. A grate of iron bars

was built across the entire floor area, and ample provision was made for draught. When the concrete had become sufficiently hard, the roof was loaded with a dead load of pig-iron to the amount of 150 pounds per square foot. On December 26th the structure was tested. A fire was built and fed with cordwood until an electric pyrometer indicated a temperature of 1,700 degs. F. This temperature, with small fluctuations above and below, was maintained for four hours. Then the fire-doors were opened and a stream of water, having a pressure of ninety pounds per square inch at the pumps, was played on the under surface of the roof for ten minutes. As was expected, the lower layer of concrete, which had been calcined by the heat, was swept off by the mechanical action of the powerful stream, but the roof still held its load of pig iron. On the following day, the concrete having cooled off and having recovered a large part of its deflection during the fire, still more pig iron was loaded on until the load amounted to 600 pounds per square foot, and even at such a load, the four-inch slab, which had been subjected to such a severe alternation of intense heat and rapid cooling, was not broken down. The one fact that the structure was sufficiently elastic to recover, while cooling, a large proportion of its deflection during the intense heat, shows a very remarkable quality of this material.

Reinforced Concrete at San Francisco.

There was also a compensation in the San Francisco disaster when it was demonstrated that the few instances of reinforced concrete work which were located within the area of the disturbance were structurally uninjured by the earthquake. The monolithic character of these buildings prevented their disintegration when adjoining buildings, consisting of brick and stone joined by mortar joints having little cohesive strength, were rapidly disintegrated by the earthquake shocks. Owing to the limitations of the building laws there were no buildings in San Francisco itself which were constructed entirely of reinforced concrete, although there were many floors of this material. An official inspection of all injured buildings was made by an expert for the Board of Underwriters. His report on the injury to reinforced concrete floors was almost monotonously "no structural damage." The very few cases of reported injury were invariably accompanied by the statement that the supports of the flooring had given way.

Concrete Girders.

Perhaps the most remarkable characteristics of reinforced concrete construction is the fact that girders, beams, and floor slabs, having a very considerable span and comparatively little vertical depth, may be built so as to carry the heaviest working loads desired by modern conditions. This characteristic only becomes possible on account of its power of resistance to transverse bending. Such resistance depends on the ability of the material to resist tensile stresses. This tensile strength is furnished by the steel, which is so proportioned and placed that it will furnish the desired resistance. It is not very many years since an engineer would have been considered foolish to have predicted that two such dissimilar materials as concrete and steel could be combined into a composite structure, and that they would mutually reinforce each other, and each supply the qualities the other lacked. The tensile strength of concrete is usually very small. Although some specimens have required a pull of 300 or 400 pounds per square inch, and even more, to break them, the breaking strength is usually not more than 200 pounds per square inch, which is so small that it becomes practically useless to depend on such strength for transverse stresses of any magnitude. It may be easily demonstrated, by practice as well as by theory, that a concrete beam, whose span compared with its depth is comparatively large, will not even support its own weight, to say nothing of carrying a live load. It is not considered safe practice to depend on a working tensile stress of more than fifty pounds per square inch in concrete. On the other hand, even a low-carbon steel will usually have an ultimate tensile strength of 55,000 to 60,000 pounds per square inch, and a high-carbon steel, such as is frequently used in reinforced concrete, has an ultimate tensile strength of about 100,000 pounds per square inch. Even if we only allow a working stress of 16,000 pounds per square inch in the steel, we are using a working stress which is 320 times as great as that which is permissible in the concrete. A cubic foot of steel weighs about 490 pounds. At three cents per pound this is worth \$14.70. On the other hand, a cubic foot of concrete is worth perhaps 20 cents, or, let us say, 1-75th of the cost

of steel. But if the steel is 320 times as strong as the concrete, we can afford to pay 75 times as much for the unit area of steel as for the unit area of concrete, and even then the steel is more than four times as cheap as the concrete, considering what it will accomplish. On the other hand, with a good grade of concrete we may safely use a working stress of 500 pounds per square inch in compression. We cannot safely use more than 16,000 pounds per square inch as the working compression for steel. This is only 32 times the allowable working stress in the concrete, and, since the steel costs about 75 times as much as the concrete, the concrete is far cheaper as a material with which to withstand compression. It should be realised that the real test is the actual cost of obtaining so many pounds of tension or compression, almost regardless of the kind of material which furnishes it. Although the above unit values of concrete and steel may be varied, both actually and relatively, they are substantially correct, and will never be modified so greatly as to alter the general conclusion that by constructing our beams and slabs by such a method that the tension is furnished by steel and the compression by concrete, we have the most economical combination of materials.

Theory.

Of course, there is far more in the theory of reinforced concrete than the mere placing of steel in the tension side of a beam or slab. Every ounce of tension in the steel is only effective as it is transferred to the concrete. In the case of a plain beam with free ends, there is no stress in the steel at the ends, while the maximum tension is usually at or near the centre of the beam. The entire amount of this tension must be gradually transferred from the steel to the concrete. In the earlier designs the adhesion of the concrete to the steel was relied on to permit the transfer of this stress from one material to the other. Elaborate tests have been made to determine the amount of this adhesion. Although the experimental values vary, as was to be expected, there was sufficient uniformity apparently to indicate a fairly constant safe working value. A great deal of reinforced concrete work has been done—and is still being done—on the basis of the permanency of this adhesion. But it is now being realised that this adhesion is not permanent, and that, regardless of its value in comparatively new and fresh test specimens, the adhesion is very greatly reduced with age, and under certain unfavourable conditions, such as continued soaking of the concrete in water, long continued vibration, etc. Failures of floors have already occurred, due to loss of the adhesion after they have successfully supported heavy loads for many years. On this account "deformed" bars, which have an irregular surface and which furnish a "mechanical bond," are now being extensively and even exclusively employed by many engineers. Some of these bars require to pull them out of concrete more than twice the force that is required by plain bars of the same cross-section. This shows that even if the adhesion were entirely destroyed, the mechanical bond will still furnish as much resistance to slipping as will be furnished by adhesion alone under the most favourable circumstances. Such a union between the concrete and the steel at all points along its length is an absolute essential to the stability of such structure.

An unusual case of long span is illustrated in the Robbins garage recently built in New York City by the Reinforced Cement Construction Company. The span of the longest girders is fifty feet. It was designed for a live load of 150 pounds per square foot. The main girders have a total depth—to the top of the slab—of about three feet, and a width of about two feet. The smaller beams have a width of twelve inches, a total depth of eighteen inches, and are spaced seven feet between centres. The slab itself is five inches thick.

It is said that a florist first conceived the idea of combining metal and cement, in making flower pots. He found that they could be made more tough and less liable to break by imbedding wire netting in the concrete. The success of these flower pots encouraged the extension of the principle of combining steel and concrete.

Retaining Walls.

One of the most economical applications of reinforced concrete lies in the construction of retaining walls. Although there is some variability and uncertainty as to the amount of the actual lateral pressure of earthwork, the proper design of a solid masonry retaining wall becomes an exact problem when we have once assumed the direction, point of application, and amount of the earth pressure. This usually requires a very large cross section of masonry, which is correspondingly expensive. The reinforced concrete method employs a comparatively thin vertical curtain wall and a large base plate, which is as wide and perhaps a little wider than the ordinary plain retaining wall, the base

plate being tied to the thin face wall by buttresses spaced at frequent intervals. The face wall and base plate are both capable of withstanding transverse stresses, while the stress in the buttresses is usually that of tension. Since reinforced concrete is the one form of masonry which can withstand any considerable amount of transverse and tensile stresses, the above form of construction can only be made in reinforced concrete. Of course, the same form could be adopted if we used steel or wood, but the durability of either material would be so little that it would not pay to construct a retaining wall of such materials.

Columns.

Another remarkable application of reinforced concrete is the possibility of making columns which are much stronger than plain concrete columns, and yet which do not employ a core of steel to take the most of the compression. A column whose length is twenty or twenty-five times its diameter will probably fail by buckling, in which case the steel on the convex side of the column would be subject to tension rather than compression. But a "short" column must fail by compression, if subjected to sufficient stress. Even in this case, steel may be employed to furnish strength on account of its resistance to tension. Although the explanation is not theoretically exact, the principle might be explained by an illustration of filling a stove pipe with sand and subjecting it to compression. The sand alone, especially if dried, would not sustain its own weight as a column. When confined by the stove pipe the compression of the sand will cause a bursting pressure on the pipe. If the pipe were filled with a liquid instead of sand, and if a piston, which fitted the pipe tightly, were placed on top of the liquid so that a load could be placed on the piston, the resulting bursting pressure on the pipe would be a perfectly definite mathematical quantity depending on the load which was placed on the piston and also on the weight of the liquid. When we use sand instead of the liquid, the grains of sand will tend to lock themselves together, and the load on the sand would need to be proportionately far greater to produce any given tension in the pipe. Using concrete instead of sand, the resistance to the "flow" of the material will be still greater, which practically means that a comparatively small amount of tensile strength in the pipe will produce a very much added resistance to compression. In practice, instead of using an actual pipe of metal, a series of rings, made of light bars and spaced a few inches apart, are bent around a few longitudinal bars, whose chief function is to form a framework on which to fasten the horizontal rings and prevent them from becoming displaced during the laying and tamping of the concrete. Such compression members are used not only for vertical columns, but also as the compression members of truss bridges, of which several have been constructed. Tests of such columns have required a compression of over 6,000 pounds per square inch to cause failure. Although the construction of trussed forms in reinforced concrete is not common, the reinforcement of vertical columns in such a manner that they may be safely subjected to greater loads than should be placed on plain concrete columns of equal size, is now recognised as safe engineering practice.

Engine Houses.

Another useful application of reinforced concrete lies in the building of structures which are especially subject to the fumes arising from the stacks of locomotives. This applies not only to engine houses and coaling stations, but also to over-head highway bridges which cross railroads. The concentrated gases of combustion have a corrosive action on steel, which wears it away in the course of a few years. No matter how much the steel may be protected by paint, even the paint will be worn off by the mechanical action of the fine cinders which are blown out by the exhaust and which act as a very effective form of sand blast. Probably most kinds of paints are chemically affected, more or less, by the combination of chemical action, and mechanical wear will destroy any protective covering in a comparatively short time. Reinforced concrete is absolutely unaffected chemically, while the mechanical sand-blast action of the exhaust is so utterly insignificant that it need not be considered. Although a wooden structure is not seriously affected by the exhaust, its lack of durability, its danger from destruction by fire, and the recent very great increase in the price of lumber, have combined to render wood an unsatisfactory and uneconomical material for such structures.

Coaling Stations.

The advantages of reinforced concrete in the construction of coaling stations also is now being recognised. A framework of structural steel, with steel plates for the floors and

sides of the pockets, has been tried in order to obtain a non-combustible structure. But the sulphuric acid, always present in the coal, corrodes the steel very rapidly, and the life of such a structure is short. If the steel is adequately protected against corrosion by concrete, the cost is considerably in excess of a steel structure, but far greater permanence is secured.

Dams.

In its application to the construction of masonry dams, reinforced concrete has entered another field. A solid masonry dam is usually constructed on the gravity principle, which means practically that the volume of its masonry is so great and so heavy that it is supposed to be safe against over-turning, but the cost of such a construction is so great that the cross section of the dam is usually reduced to the lowest limit which is considered permissible. The upper face of such a dam usually makes an angle considerably greater than forty-five degs. with the horizontal, and, under such conditions, a flood over the dam will raise the line of pressure and decrease the factor of safety. The higher the flood, the greater the danger. Under such conditions, a weakening of the foundation or an unsuspected washing out of the sub-soil may cause a settlement and a shifting of the line of pressure until the factor of safety, which for the sake of "economy" has been made very low, is wiped out, and the result is a disaster which perhaps spreads destruction through a valley.

Another type of dam is illustrated in an old-fashioned timber dam which is always constructed with a comparatively flat up-stream face, the angle of the upper face with the horizontal being less than forty-five degs. Even the line of the resulting water pressure lies inside the base of the dam. There is never any tendency to over-turn, and a flood only increases the pressure of the dam on its foundation. As long as such a dam is kept tight, so that there is no flow of water through the dam to disintegrate the foundation, the dam is usually safe, but, being constructed of timber, which is usually alternately wet or dry, the life of such a dam is exceedingly limited, and, considering the present price of lumber, is not even economical.

Hollow Dams.

A reinforced concrete hollow dam combines all of the safe principles and advantages of a timber dam with the indefinite durability of first class masonry construction. The up-stream face of a concrete dam is made with a comparatively flat slope, usually less than forty-five degs. with the horizontal. Hydraulic pressure, being a perfectly definite quantity, it enables the engineer to design such a dam with a full knowledge of the stresses to which it will be subjected. These stresses are such that they may be easily provided for by the skeleton construction which is adopted for these dams. The dams consist essentially of an up-stream "deck," whose chief duty is to withstand the direct and definite pressure of the water above it. This deck is supported at intervals by vertical walls which are parallel with the line of the stream, and which transfer the pressure to the foundation of the dam. One great advantage in the method of construction is that, the dam being hollow, it is possible to detect any leaks which might develop, and usually they can even be repaired without emptying the reservoir. The broad base of these dams permit them to be placed on sub-soils, which ordinarily would be considered too soft for any masonry dam, but which can sustain on such a broad base all the pressure which can possibly come on them.

Concrete dams are constructed very rapidly, and at such a reduction of cost below that of ordinary masonry dams that such designs have rendered practicable the utilisation of water powers, which would not financially justify the construction of an ordinary stone masonry dam. The construction of these hollow concrete dams has even permitted the utilisation of the space within them for gates, and even for the location of water wheels and dynamos, thus permitting a very great reduction in the cost of the entire plant. Such a dam may even contain a passageway which will permit crossing the river in times of the highest floods, and thus save the construction of a bridge at that point. The dam recently constructed at Schuylerville, New York, is an illustration of this feature.

Expansion.

Another remarkable characteristic of reinforced concrete construction is the possibility of avoiding expansion joints in continuous structures, no matter what may be the length. For example, if it were desired to construct a retaining wall with a length of a mile or more, it can be done without employing expansion joints, such as would be absolutely necessary with any other form of masonry construction. Many engineers are still sceptical on this point, but the ultimate proof of such a theory lies in practice, and it is

indisputable that there are many examples of structures built of reinforced concrete which would unquestionably have shown temperature cracks if they had been built of ordinary masonry, but which, although built for several years—long enough for such cracks to have developed—have not shown any evidence of cracking.

The only apparent rational explanation of what appears now to be an undoubted fact is, practically, the same as that which permits a reinforced concrete beam to be deflected for a very considerable percentage of its span without showing any cracks on the stretched side. It is well known that plain concrete cannot be stretched more than a very minute fraction of its length without cracking. A very long monolith of plain concrete will nearly always develop cracks, which are caused by a concentration of the stretching at the weakest points in the concrete, and since the proportional amount at which concrete may be stretched without rupture is very small, a concentration of the extension at one place will cause rupture at that point. If the metal is properly embedded in the concrete, so that the concrete and the metal will stretch together, then the deformity of the concrete by stretching will be distributed uniformly throughout its length instead of being confined to a few points.

Objection is sometimes made to the policy of not using expanded joints on the ground that there have been several instances of monolithic reinforced concrete structures in which temperature cracks have developed. In such cases it is easily demonstrable that the metal was not well distributed through the body of the concrete. The effectual prevention of cracks is only accomplished by such an intimate union of the concrete and the steel that they must act together under all circumstances and conditions of temperature. It is not an easy matter to compute theoretically just what proportion of metal will be needed to ensure a wall against cracking. It is probably true that the metal which will ordinarily be needed for reinforcement will also be able to take care of such stresses, and it is certainly true that the uniform distribution of the metal is of far greater importance than its amount. The Harvard stadium has a length of fourteen hundred feet, and was constructed without expansion joints. It has already experienced three northern winters. No cracks have developed in this structure, except at a point where the straight portion joins the semi-circular end, and even here the cause of the crack is not considered due to changes of temperature.

Bridges and Arches.

Reinforced concrete has even invaded the realm in which stone masonry has been considered from ancient times the best building material, and is now strongly competing with it in the construction of arch bridges, both because it is cheaper and also better. Stone arch bridges have been built for many hundreds of years. Some of them have been built by men who probably had no knowledge of the theoretical mechanical principles now used in designing such arches. And yet these men constructed arches of long span which had comparatively little rise. But since the stone arch depends purely on compressive stresses, the design has very definite limitations. It is almost invariably found that the dead weight of a stone arch is several times the maximum live load which may be safely placed on it, and that even a portion of this load, if placed near one end of the arch, may test it more severely than the full load uniformly distributed. The ability of a reinforced concrete arch to withstand transverse stresses furnishes a large element of safety which is wholly unobtainable with plain stone masonry, and actually permits dimensions and proportions which would be unsafe in a stone arch.

Although a reinforced concrete arch is usually designed so that the "line of pressure" for full loading will pass nearly through the centre of the arch, which means that every portion of the arch is under compression, yet the arch will not necessarily fail if, for an eccentric loading, the line of pressures should pass entirely outside of the arch ring. In such a case, its stability would depend on the transverse strength of the arch section. A plain stone arch with the same dimensions, and loaded in the same way would necessarily fail. Reinforced concrete is superior for such a purpose.

Messrs. Archibald Constable and Co. will publish shortly a book on Sewage Disposal Works by Mr. Hugh P. Raikes, A.M.I.C.E., etc. The author is a well-known consulting engineer, who has had fifteen years' experience in the designing and construction of such work. Although there have been several books issued recently by "scientific" authorities and chemists on the question of sewage disposal, there is no practical up-to-date book dealing with the subject from the engineering point of view.

OUR NORTHERN LETTER.

(FROM OUR CORRESPONDENT.)

Belfast Union Sanatorium.

The formal opening of "The Abbey" Sanatorium, in connection with the Belfast Union, took place on the 19th September. It is now some years since the Board of Guardians, moved by the inroads of consumption, determined on the erection and equipment of a sanatorium, to meet, at the outset, with a considerable amount of opposition as to site, the residents in localities strongly thinking such an institution objectionable. In the end, purchase was made of "The Abbey," for many years the residence of the late Sir Charles Lanyon, senior partner of the firm of Lanyon, Lynn and Lanyon, Architects, Belfast, which residence, together with about thirty acres of land surrounding it, was procured for £5,000. The situation of "The Abbey," about four miles from the city centre, could hardly be surpassed in either suitability or beauty. It adjoins the Midland Railway line at White Abbey Station, about a quarter of a mile from the lough edge, and is delightfully wooded. "The Abbey" itself, being in good condition, was adapted as the administrative block, and the new buildings, consisting of four separate pavilions and an hospital block, are grouped round it. Although formally opened only on the 19th September, the establishment has been for some time in occupation; the average number of patients in the first stage section being 120, and in the chronic section—which is isolated from the other—150. The pavilions are one-storeyed, well elevated above the ground, and have a southern aspect. Each comprises a central sittingroom, 31 feet by 22 feet, at either side of which are two wards, 30 feet by 20 feet, and beyond these another, 20 feet by 20 feet, with a glass verandah, 8 feet wide, running the entire length of all. One pavilion has two of its wards 40 feet long. Sanitary arrangements are in annexes at rear of pavilions, with ventilating lobbies intervening. The hospital block contains four wards, each 84 feet by 23 feet, and containing 24 beds, and 10 smaller wards, giving a total provision of 148 beds. The pavilions are heated by a system of low-pressure hot water pipes, with ventilating radiators placed below the windows, which work was executed by Messrs. Musgrave and Co., Ltd., Belfast. The wards are heated by hot water pipes and ventilators from a Doyle's heater, carried out by Messrs. Riddell and Co., Ltd., Belfast. Messrs. Diespeker, of whom Mr. F. A. Porter, Queen Square, Belfast, is the local representative, executed the terazzo work. The lifts were provided by Messrs. Waygood. Messrs. John Dowling and Sons, Belfast, carried out the plumbing work. Mr. William Dowling, Belfast, was the general building contractor, Mr. Murray Clerk of Works, and the Architects, Messrs. Young and Mackenzie, Belfast, who do all the architectural work of the Board of Guardians. The total expenditure on the Sanatorium has been £30,000.

Queen's College, Belfast.

The opening ceremony of the recent additions to the Queen's College, Belfast, took place on the 20th September. It was to have been performed by Lord Kelvin, O.M., D.C.L., F.R.S., etc., Chancellor of the University of Glasgow, a Belfastman, an old student of the Queen's College, and a most generous contributor to its funds. In his absence, through the illness of Lady Kelvin, the ceremony was performed by Sir Otto Jaffe, Chairman of the Better Equipment Fund Committee. Since 1901, when the fund was initiated by President Hamilton, a total of £70,175 1s. 9d. has been contributed to it by private subscription. This sum, as its name implies, has been devoted more to equipment than structure, still the new building additions are considerable. A block in the north wing has been erected for the accommodation of the departments of physics and engineering, and named the "Harland Laboratories." The chemical, or "Donald Currie Laboratories," have had added to them a large lecture-room, a preparation room, a chemical museum, and a sanitary science museum. The Pathological or "Musgrave Laboratories" have been enlarged by addition of an extensive laboratory, a bacteriological and medical jurisprudence room, and a demonstrator's room. The Physiological or "Jaffe Laboratories" additions include a practical chemical classroom, a practical experimental classroom, a histology room, a galvanometer room, etc. The medical buildings have been increased by a new lecture theatre and operating room, etc. Additions have also been made to the Department of Natural History, to the sanitary accommodation, etc. A new gate-lodge and tower, named by H.M. Board of Works, with the consent of the College Council, "The Hamilton Tower," in honour of the President, has been erected at the front. The buildings have been carried out in Laganvale brickwork, with

Giffnock cut-stone dressings in the Tudor style of the College. They are heated by low-pressure hot water pipes and radiators, and provided with ample ventilation on the natural system. They are lighted throughout by electricity, except the new medical rooms, which are provided with powerful self-intensifying gas lamps. The heating was carried out by Messrs. Musgrave and Co., Ltd., of St. Anne's Ironworks, Belfast; the electric lighting by Messrs. Curran Bros., Belfast; the plumbing and gasfitting by Mr. Harrison McCloy and Mr. John Dowling, J.P., both of Belfast; the fittings for the engineering and physical laboratories by Messrs. T. R. Scott and Co., of Dublin, and for the other buildings by Messrs. Baird and Tatlock, of London, and Messrs. T. and W. Lowry, Woodstock Road, Belfast. The general building contractors throughout (with the exception of the Biological Laboratory, built by Messrs. J. and W. Stewart, Belfast and Dublin), were Messrs. Robert Corry, Ltd., Belfast, the architect being Mr. Robert Cochrane F.R.I.B.A., I.S.O., LL.D. Superintendence was supplied by Mr. S. K. Kirker, Assistant Surveyor, Belfast, and his assistant, Mr. Russell.

New Contracts.

The following works will, in a few days, be put to tender:—Alterations and additions to warehouse in Little Victoria Street and Hope Street, Belfast, for Mr. John M. Cleland, from plans, etc., by Mr. T. H. McCaul, architect, Belfast; approximate cost, £3,600. Bills of quantities are prepared by Mr. S. C. Hunter, Scottish Provident Buildings, Belfast.

Alterations and additions to Belfast Bank, at Rathfriland, Co. Down. Messrs. Graeme-Watt and Tullock, Victoria Street, Belfast, are the architects, and Mr. S. C. Hunter, Quantity Surveyor.

Labourers' Cottages at Strabane.

At a special meeting of Strabane No. 1 Rural Council, Co. Tyrone, held on the 24th September, a scheme for building 518 additional labourers' cottages, at an estimated cost of £97,186, was adopted. Mr. Hunter, B.E., is architect. At the meeting it was stated that interest on the outlay would amount to £2,022 per annum, and the rents at 1s. 6d. per week would amount to £2,020. This is one of the most extensive schemes yet decided on under the Labourers' Acts, and will provide extensive employment in Co. Tyrone for some time.

Municipal Improvements at Ballymena.

A Local Government Board inquiry was held at Ballymena, Co. Antrim, on the 26th September, by Mr. A. D. Price, M.I.C.E., for sanction to a loan of £4,900 made up as follows:—Granolithic footpaths, £3,000; public abattoir, £1,500; purchase of steam fire-engine, £300; and laying water mains, £100. At the inquiry it was stated that the total valuation of Ballymena is £35,319 15s. 0d., and the Council's borrowing powers, £61,611 10s. 0d., while the outstanding loans amount to £42,759 13s. 10d. The present rate is 5s. 6d.

Bangor (Co. Down) Proposed Library, etc.

Some time ago Mr. Andrew Carnegie offered £1,500 to the Urban Council of Bangor for erection of a free library, but the project fell through owing to the impossibility of satisfying Mr. Carnegie's condition that a free site should be given. Now the project has been revived in a proposal to erect such a library in conjunction with a new technical institute. Mr. Carnegie has assented to the scheme subject to the submission of plans, and to the condition that the contracts for the library and the technical institute be kept separate, so that he could see how the money had been spent. This assent has been obtained by the Bangor Technical Instruction Committee, who have resolved to approach the Urban Council with a view to the latter borrowing £1,000 for carrying out the technical institute part of the scheme. The Urban Council will most probably agree to do so.



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CONTENTS.

	PAGE.
Topical Touches	677
The Application of Ferro-Concrete	678
Our Northern Letter	685
LEADING ARTICLE :—	
The Cathedrals and Churches of Northern Italy	686
COMMENTS :—	
Modern Art Gallery for Dublin	689
The Disappearance of Old Dublin Work	689
Clongowes Wood College and Concrete Blocks	689
Comparisons are Odious	690
Answers to Correspondents	690
Correspondence	691
Additions to Queen's College, Belfast	691
Our Illustrations	691
Building News	693
Tenders	694
Books Received	694
Engineering Items	697
Registration in America	698
Stone for the New College of Science	698
Blackrock Main Drainage	700
Law Cases	700
New Church, Timoleague	701
Engineering News	702

THE CATHEDRALS AND CHURCHES OF NORTHERN ITALY.*

Our readers are probably well acquainted with Mr. T. Francis Bumpus' books on English, French, and German architecture, which from time to time have been noticed in our columns, and have run into more than one edition. Those who have read his delightful "Churches of Northern Germany," and his no less charming "Holidays Amidst the Glories of France," will look forward with pleasurable anticipation to his "Cathedrals and Churches of Northern Italy." Mr. Bumpus' former books were the results of holiday tours through the countries he dealt with, and, as all his readers know, are the outcome of a genuine and whole-hearted love for beautiful old architecture. There is nothing of effort in what Mr. Bumpus writes. He is not, we believe, an architect, but he possesses a close and intimate knowledge of the subject of which he treats, whether he finds himself spending a quiet Sunday in a sleepy, old-world little town in Brunswick or Westphalia, or beneath the shadow of Amiens Cathedral, or in some old English cathedral city.

We do not know whether it is because Mr. Bumpus is not an architect, or in spite of it, that his books, discursively and pleasantly written, are always so readable, and so that dryness which too often is associated with architectural works is absent. Mr. Bumpus has the knack of, as it were, bringing us with him on his travels, and his pen pictures of local impressions are excellent. In his preface he tells us how he came to

write the present volume (which is a larger work than any he has hitherto produced). His publisher came to him, and asked him to undertake "Northern Italy" for his Cathedral Series. Mr. Bumpus confides that he shrank from the task; but we take leave to say he need not have done so, and that he has, by fulfilling the task, laid his readers under an obligation. Architects who have not made the inevitable pilgrimage to that Mecca of architects—Italy—will be fired with the ambition to do so without further loss of time, while the general reader will be imbued with a desire to know more of buildings and of architecture, and to see places so charmingly described; he will also, if we mistake not, feel some little surprise that the subject could be adequately dealt with in so light a touch. We have laid stress upon the fact that Mr. Bumpus' previous works are the result of genuine holiday rambles, and inspired by genuine enthusiasm for architecture, far removed from the usual unintelligent trips of the ordinary tourist, who sees but understands not. The nature of his journey undertaken for the purposes of the present volume, and the spirit which underlay his venture, is suggested by the fact that when he left Harwich for the Continent, his sole *impedimenta* consisted of a knapsack and portfolio.

Mr. Bumpus has written not a technical text-book, but a delightful volume of personal impressions and the intelligent criticism of a cultured layman. The title of the volume alone at once impels comparison with Street's "Northern Italy," and comparisons, as we know, are "odious." Street wrote as an architect, and produced, admittedly, a most admirable book; he directed attention to many things previously obscure and lost sight of, and made a contribution to architectural literature that deserves permanent appreciation; but his style was almost the opposite of Mr. Bumpus', inclining to dogmatism, and written in a somewhat dry strain that is not attractive, while the fact that he was such a bigoted "Goth" detracts from the merit of his work—he simply refused to see any good in anything that was not Gothic.

Mr. Bumpus tells us how he made the journey across Europe, through Cologne, Würzburg, and the Rhineland, Nuremberg, and so on. Wedded to, as it were, Mr. Bumpus' appreciation of architecture is his no less keen love for the music of the Church. The one seems to help the other. His preference for the ancient plain chant and other solemn church music, as opposed to the florid and theatrical music too often heard in Catholic churches, is most marked.

Arrived in Italy, Mr. Bumpus makes a general survey of the northern Italian churches, and considers their status, the influence exercised on the Gothic revival in England, and the work of Butterfield and Street. He traverses many cities and towns, some of them only names to many traders, other famous—Trent, Verona, Vicenza, Padua, Venice and Treviso, Bologna, Ferrara, Ravenna—while a chapter is devoted to "some Lombard cathedrals," and finally Milan. At the end of the volume is a most useful feature: a list of the more remarkable pictures and wall paintings referred to in the book.

Mr. Bumpus shows us, in the course of his descriptions, how much may be made of brick. The brick of the Lombard churches is of "the very commonest and coarsest kind," and whatever beauty is conceded to them is due to their general outline and proportions.

Some excellent descriptions of the churches are given, but for these we must refer our readers to the book itself. The views given are numerous and admirably selected;

* "The Cathedrals and Churches of Northern Italy," by T. Francis Bumpus. With 81 illustrations (nine in colour). London: T. Werner Laurie, Chafford's Inn, E.C. Price, 16s. net.

on the whole, they are well re-produced, but in a work of the excellence of this we should like to see them still better, particularly in regard to the coloured, which, although excellent enough in their way, do not quite convey a natural colour impression. Some of the interiors illustrated are, in particular, worthy of close study—a beautiful interior in Sta Guistina at Padua, while a simple, but delightful, interior is Sta Agata—a Ravennese Basilica. In his survey of the Italian churches, Mr. Bumpus discourses upon the peculiar type of work associated with Ravenna, and on the connection existing between it and the East.

It is quite impossible for us to give anything like a full description of the book, but, dip where he may, the reader will find something, description or speculation, to interest him.

COMMENTS.

Modern Art Gallery for Dublin.

At long last there appears to be a prospect of something being done to form the nucleus of a Modern Art Gallery for Dublin. It will be remembered that Mr. Hugh Lane made a splendid effort to this end some time ago, presenting to the city his own fine collection of modern paintings, and endeavouring to raise funds to purchase the well-known Staats-Forbes Collection. The effort fell rather flat—there was a good deal of talk, but no real enthusiasm, and so the matter remained in abeyance. Now, however, the proper authority, the Corporation, have taken it up, and in spite of considerable opposition have determined to adopt the report of the Public Libraries Committee recommending the purchase of No. 17 Harcourt Street for the purpose of housing the Lane Collection. This is an eminently practical effort dealing with the difficulty in a common-sense manner. The erection or acquisition of some palatial structure on an imposing site, while no doubt desirable, is at present, at all events, utterly unattainable, and the suggestion of buying a fine old residence like No. 17 Harcourt Street, and there housing the collection, is far preferable to the notion of stowing it away in some back wing or attic of an existing museum or building intended for wholly different uses. It is argued that the step taken is extravagant, that the sum earmarked for the purpose of a modern gallery (£500 a year) is wholly insufficient. We see no reason why it should not amply suffice for a good while to come. We venture to say that, once started on this excellent work, and the citizens interested, the Corporation will not stop here, but will endeavour to add to the collection from time to time as opportunity offers. Over and over again we have pointed out that the Corporation might do something to encourage native talent if they purchased even one picture a year. The annual exhibitions of the Hibernian Academy may be never so weak, but there are always some pictures of real merit shown. The Corporation have taken the step in question under the best expert advice, and if they continue to so act, we venture to say few ratepayers will cavil at the comparatively trifling cost involved in the acquisition and maintenance of the collection. Later on, if the finances of the city permit, or some wealthy Dublin citizen feels inclined to confer so great a boon on his native city, a modern art gallery worthy of the metropolis may be built. Or possibly State aid might be given. At all events, a good beginning has been made, and we hope will be fully carried through. One thing should be carefully guarded against, and that is, that in adding to the collection the utmost care should be taken that none but really good pictures, selected under the best obtainable advice, should be included. To include mediocrities would destroy growing interest in the gallery and lay it open to ridicule.

The house selected is in every way suitable; a fine old Dublin mansion with some good ceilings, lightsome and airy, and has been cheaply acquired by their business-like methods. The Committee saved the city from being mulcted, as is the almost invariable rule, when any public body makes a

purchase of the kind. The matter was before the Corporation on 6th September, and despite the opposition of Mr. Vance, Dr. McWalter and others, we are glad to say the motion was eventually passed with a single dissident. Since then nothing has transpired, and we trust that no hitch may occur to prevent the desires of the Committee being carried into effect.

The Disappearance of Old Dublin Work.

We have often from time to time spoken of the pity of it that so much fine old Irish work of the eighteenth century should remain in daily danger of destruction, and yet be unrecorded. Day by day so much of the old work is removed or mutilated; that is the minor work. Dublin was once the centre of a very polished and cultivated society, full of artistic instinct. In our present issue Dr. McDowell Cosgrave directs attention to the necessity of some effort to preserve and record the old work, if it is to be rescued from utter oblivion. This is a subject upon which we have written in season and out during many years past. Many other persons besides Dr. Cosgrave might easily be induced to interest themselves in so admirable an effort.

Recently a gentleman resident in London has interested himself in the subject, and written us thereon, and we have no doubt that were a suitable committee established he would afford valuable assistance in the work to be done. The names even of the Irish architects and designers of the eighteenth century are hardly known to us, save a few of the more prominent, such as Gandon, Cassells, and Cooley. Our correspondent in London mentioned the name of one, Aheron, who published a book in Dublin in 1774 on the Orders; yet little or nothing is known of him, while only the other day we learnt for the first time of Bishop, the architect of the Earl of Blessington's fine mansion, Russborough.

As is generally known, the chief architects of that classic period of Irish art were Gandon (a Franco-Englishman), Cooley, and Gandon, and a few others.

In Aheron's book is published a list of subscribers (in which the names of Cork and Kerry county families predominate).

Aheron appears to have been a man of refinement, education, and good taste, and from the list of subscribers we find evidence of a much better and more widely diffused standard of taste than now unhappily prevails. Having regard to the political aspect and the turmoil prevailing, the polish of the society of the day is nothing less than wonderful.

It is quite a practicable scheme outlined by Dr. Cosgrave, helpful and advantageous to the Irish public, cheap to "run," and of incalculable benefit to the young architectural students. It ought to be very easy to form a committee to sketch, measure and plot or photograph the work which still remains, under the auspices of a general committee; and if Dr. McDowell Cosgrave's suggestion were given effect to, really good results should ensue.

CLONGOWES WOOD COLLEGE AND CONCRETE BLOCKS.

The following letter has been received by the Dublin Industrial Development Association from Messrs. Ashlin and Coleman in reply to Council's letter regarding the use of concrete for the Clongowes new church—

"To W. J. Branagan, Secretary D.I.D Association.

"Dear Sir—We have received your letter addressed to our Mr. S. M. Ashlin. We regret very much that it was found necessary to abandon the use of granite for the facing, and limestone for the dressing, for this new church, as originally specified; but, owing to there being no suitable stone in the neighbourhood for either facing or dressing, the cost, as appeared by the estimates, was prohibitive. The only choice, therefore, lay between a brick or rubble building plastered, and which has been adopted—viz., a building faced with cast concrete hollow blocks, which we believe to be a very durable construction. The local sand and gravel is specially suitable for concrete, and all the work will be done on the ground. Although, therefore, we regret the non-use of wrought stone, we think that the

present arrangement secures two results—viz., that all the expenditure will be made on the spot and the durability of the structure will be secured."

At the meeting at which the letter was laid before the Council, Mr. William Field, M.P., moved the following resolution—"That this meeting disapproves of the unnecessary use of imported materials in the erection of buildings in Ireland, and we strongly commend the utilisation of Irish bricks, stone, and marbles as more suitable to our climate, and the endeavour to provide employment for our people in their own country; and that the building trade, in relation to this subject be the next matter dealt with by our Trade Advisory Committee." Continuing, Mr. Field said it was quite plain that they had plenty of marble and good bricks, and he did not see the necessity of anybody or Government importing stone into this country. He had a particular objection to Portland stone, because, as far as he could learn, Portland stone was procured by convict labour, and, therefore, was cheaper than any other labour, and he looked upon its use in Ireland as a public scandal. He would refer to another matter while on the point as regards importation. They had seen that a considerable discussion took place with regard to what was called foreign trade and to give facilities for the extension of foreign trade into Dublin. They were told by some people interested in this trade that it was for Dublin's benefit that imports should be dumped into Dublin—for the benefit of consumers and workers. He (Mr. Field) took the trouble to get a few shipping manifests, and from them he saw—Imports from Rotterdam, 70 cases of starch, 3 basket chairs, 20 packages of rugs, 110 bundles of baskets, 1 barrel of herrings, 27 packages of paper, 6 cases of toys, 1 case of brushes, 3 cases of glass bottles, 5,950 bundles of laths, 4190 bundles of box boards, 230 pieces of doors; from Gothenburg, 93 reels of paper, 20 mats, 4 crates of bottles, 17 cases of meat. Why it should be necessary to import meat was beyond him. "No, I'm wrong—it is meat choppers." Here there were repetitions of goods already named, and again on the 15th August, 1907, there were from Dantzic 205 bales of paper, 8 cases of matches, 130 pairs of doors, etc. Mr. Field said it was seriously argued by those interested in foreign trade that it is for the benefit of Dublin workers and Dublin trade. This importation of manufactured materials ought not to be encouraged, but the importation of new materials should, which would give work to our people at home.

Mr. Perry agreed. There ought, he said, to be an attempt to come to some agreement that would satisfy all parties concerned—the men who do the work, the men who collect it, and the men who buy. They had in Dublin very few Dublin builders. There was in Dublin ten or fifteen years ago a fine set of men who did their work well. Now it is being done by Belfast men—master builders. This was a question that must be met somehow or other, and it is a question of what is to be done with concrete for cheapness. It was a great invention undoubtedly, but if it were to be replaced now, something would have to be done to meet the competition of it.

The Chairman said—As regards the use of concrete, it was an economic matter, and if for certain purposes they were saving a first cost, which was desirable, and concrete was found to be more suitable than brickwork, there was no use in the association standing in the way. This was eminently a subject for a conference between the various parties concerned, and in our enthusiasm—and proper enthusiasm—to encourage the use of native Irish materials, they must not let this country get behind other countries in the matter of applying modern methods.

USE OF CONCRETE FOR COTTAGES.

At the General Council of the Land and Labour Association, which met at Limerick, Mr. John Osborne, Bruff, presiding, a deputation from the organising committee recommended that concrete cottages ought to be disapproved of, but the Council decided not to express any opinion at present, but to invite the careful consideration of the matter, as the circumstances of different districts varied very much.

"COMPARISONS ARE ODISIOUS."

The Quebec Bridge Disaster.

As might be expected, various suggestions have been made to account for the failure of the great cantilever arm in the Quebec Bridge. Defective material has been put forward as a possible cause; but it is more than probable that the committee of experts now investigating the matter may find the true explanation in the development of stress in some way or to an extent not contemplated by the designers. Mr. Theodore Cooper, of New York, the consulting engineer, while believing that the work as planned was absolutely safe, is reported to have said that in dealing even with an old type of work on a hitherto unparalleled scale new and unexpected problems are apt to arise, and that one cannot prophesy with infallibility about absolutely new things. We should not like to suggest that the designs were otherwise than sound, or that insufficient factors of safety were adopted. Still, there is a wide gulf between British and American engineering designs—a point which is illustrated by the following quotation from some remarks made by Mr. Cooper himself at a meeting of the Engineers' Society of Western Pennsylvania in June, 1891. The words then used were:—"You all know about the Firth of Forth Bridge—the clumsiest structure ever designed by man, the most awkward piece of engineering, in my opinion, that was ever constructed, from the American point of view. An American would have taken that bridge, with the amount of money that was appropriated, and would have turned back fifty per cent. to the owners, instead of collecting, when the bridge was done, nearly forty per cent. in excess of the estimate." It is delightfully easy to talk!—*The Builder*.

RUSSBOROUGH HOUSE, BLESSINGTON.

The Milltown collection of pictures, which has now been placed in rooms allocated to itself alone in the National Gallery, had, before it was presented to the National Gallery by the Dowager Countess of Milltown, been located in the ancestral residence of the Earls of Milltown, Russborough House, Blessington, which is passed on the steam tram line to Poulaphuca. Russborough, which is in the Italian style of architecture, vies with, if, indeed, it does not excel in beauty, Carton, the residence of the Duke of Leinster, and Castletown, the residence of the Conolly family. Russborough was built from the designs of Bindon, who was one of the most eminent portrait painters of the eighteenth century. The portrait of Dean Swift, given by the Dean himself to the Earl of Howth of the day, and lent by the present Earl of Howth to the Irish Exhibition, is the work of Bindon, for whom the Dean, who specially commissioned him to paint the portrait, sat. Bindon in declining years fell on evil days, and was afflicted by the almost intolerable privation, especially to a painter, of total blindness.—*The Freeman's Journal*.

ANSWERS TO CORRESPONDENTS.

Hot Water System.

J. S.—To fit the bath and lavatory with hot water supply you would have to fix a toe boiler at back of range, say, 12 in. x 10 in. in 3-16 in. plate. You would also require, say, a thirty gallon copper cylinder (these latter, by the way, are made in Ireland by Messrs. Miller and Co., Church Street, Dublin), and it should be tested up to at least 20 lbs. pressure per square inch. There should also be a thirty gallon galvanised tank for storage of cold water. The piping behind range, and in connection with same, should be of heavy copper, 3/4-in. The circulating piping from cold water tank to cylinder, etc., may be of lead, 3/4-in. 8 lbs. lead. Copper circulating pipes throughout are best of all, but would add considerably to the cost. Galvanised iron steam tubing is sometimes used, and does not cost much more than lead, and is a far superior job where the quality of the water is suitable. The branches to bath and any other fittings to be 3/4-in. The supply pipe to cold water tank should be 1/2-in. heavy lead Vartrey pipe.

The foregoing is for a small installation which we take yours to be. If the bath is likely to be used frequently in rapid succession a forty gallon copper cylinder would be better. On the other hand, if, say, only one bath per morning were required, a twenty gallon cylinder is sometimes used, but it is very small. In some cases galvanised iron cylinders and boiler are used, but it is not a good job, and we could hardly recommend it for all the saving you would effect.

The following answer to a correspondent in an American weekly is not bad:

"Legal."—No, you cannot compel the plumber to take the house and premises in part payment of his account.

CORRESPONDENCE.

Suggested "Old Dublin Society."

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

DEAR SIR,—A number of suggestions have been made to form a society—which might last for three, four, or five years—to examine and record whatever of beauty and interest remains in the older parts of our city, especially in those parts which are likely soon to disappear; the subscription money to be spent in preparing and publishing a richly illustrated annual volume. The series of volumes would form a valuable record, and save much from passing into oblivion.

It would be most important to have the help of the architectural profession; they know what is of value, and their sketches would be reliable.

In addition to the general question of the advisability and feasibility of forming such a society, perhaps you would allow your readers space to discuss the following points:—

1. What suitable drawings and photographs, already taken, would be available for reproduction.

2. What features of interest and details are worth recording.

3. Whether the architectural associations, as such, would be likely to be interested in the project.

Any such information sent to me personally I shall gladly preserve, and hand over to the responsible persons if the project materialises.—Faithfully yours,

E. MACDOWEL COSGRAVE.

5 Gardiner's Row, Dublin.



ADDITIONS TO QUEEN'S COLLEGE, BELFAST.

On Friday last the laboratories which have been erected in connection with this College, were opened by Sir Otto Jaffe in the absence of Lord Kelvin, who was to perform the ceremony, but was detained in Glasgow. In a letter to the President, he said the opening day was unique in University history, and that never in one day and in one University were seven laboratories opened for scientific instruction and research. The following is a short description of the new buildings:—The "Harland Laboratories."—A block of buildings in the North wing has been erected for the accommodation of the departments of Physics and Engineering. They contain a large practical class room, 59ft. x 24ft. for Physics, and an Engineering workshop, 34ft. by 32ft., on the ground floor; and on the first floor a Physics advanced practical class-room, 26ft. by 25ft., and engineering drawing-office, 45ft. by 34ft.; two private rooms and laboratories for professors, and a large apparatus room; also an equable temperature room, 16ft. by 12ft., on the basement.

The Chemical or "Donald Currie Laboratories," have had added to them a large lecture theatre, 43ft. by 33ft., with gallery, having seats curved concentrically; also large teak-top lecture table, with special fittings, fume chamber, with duct connected to fume shaft, where a draught is set up by an electric fan, controlled by an electric switch fixed beside the fume chamber; a preparation room, 24ft. by 15ft., fitted with teak benches, having sinks with water supply and waste; also gas fittings; a chemical museum, with ample floor and wall cases for specimens; a Sanitary Science Museum, 34ft. by 18ft., with large cases and a storeroom.

The Pathological or "Musgrave Laboratories" have been enlarged by the addition of an extensive laboratory, 43ft. by 28ft. for the professor; a bacteriology and medicine jurisprudence room, 27ft. by 27ft., and a demonstrator's room, 22ft. by 15ft. The fittings consist principally of special benches, with porcelain sinks, water and gas taps.

The additions to the Physiological or "Jaffe Laboratories" include a practical chemical class-room, 40ft. by 20ft., fitted with benches having pulleys, shafting, and Kershaw drums for experimental purposes, driven by an electric motor; a practical experimental class-room, 23ft. by 20ft., fitted with benches with sinks, gas and water supply; a Histology room, 40ft. by 20ft., with benches, gas and water supply and waste; a galvanometer room, with galvanometer stand built into the wall, and benches; also a lecture room fitted with seats and benches.

The Medical Buildings have been increased by the erection of a new lecture theatre and operating-room, 35ft. by 30ft., fitted with gallery and benches; also power lift communicating with the basement cellars. The entire mechanism

of the lift is below the floor, and, in rising, it lifts a portion of the floor, which is automatically replaced as the lift descends, and there is nothing in the room to interfere with its symmetry. An operating table, diagram screens, ground-glass "black-board," and lavatory have also been provided. A preparation room, 10ft. by 18ft., adjoins, fitted with cases, tables, and benches. A storeroom has also been provided, and lavatory accommodation for the professors.

The Professor of Natural History has been provided with a large Biology Laboratory, 79ft. by 23 ft., a Geology classroom, 33ft. by 23 ft., demonstrator's room, 23 ft. by 12 ft.; also professor's room, photographic room, senior students' room, and glass botanical propagating house on the roof. The rooms have been supplied with expensive fittings, gas and water supply, for the use of the students and professors, and suitable lavatory accommodation. The lavatories for students have been fitted with modern sanitary fittings. The floors and skirtings are formed with marble terrazzo, having curved joinings. The walls are faced with, and the divisions formed with, white marble slabs.

The brick wall enclosing the college grounds has been replaced by a wrought-iron railing on brick and cut-stone plinth, and piers with moulded cut-stone caps at intervals.

A new gate-lodge and tower, named with the consent of the College Council, "The Hamilton Tower," in honour of the President, have been erected at the front, and the arched entrance is fitted with handsome wrought-iron gates.

The new buildings have all been heated by the hot-water system, with low pressure and radiators, and all provided with ample ventilation on the natural system. They are lighted throughout by electricity, except the new medical rooms, which are provided with powerful self-intensifying gas lamps. The buildings have been carried out in brick from the Langanvale Brickworks with dressings of cut-stone, and were designed in a style to harmonise with the adjoining existing structures by Mr. Robert Cochrane, I.S.O., LL.D., F.R.I.B.A. They were carried out under his directions, assisted by the Board of Works' local officer, Mr. S. K. Kirker, assistant principal surveyor, and Mr. Russell. The building work, with the exception of the Biological Laboratory (built by Messrs. J. & W. Stewart) were all executed by Messrs. Robert Corry, Limited, in the efficient manner for which this firm is noted. The heating was done by Messrs. Musgrave & Co., of the St. Ann's Ironworks, Belfast, the electric lighting by Messrs. Curran Brothers, the plumbing and gasfitting by Mr. Harrison McCloy and Mr. John Dowling. The fittings for the Engineering and Physics laboratory were supplied by Messrs. T. R. Scott & Co., of Dublin, and for the other buildings by Messrs. Baird & Tatlock, of London, and Messrs. T. & W. Lowry, Woodsack Road, Belfast.

The President opened the proceedings by giving a short account of the effort made by the College Equipment Scheme to increase the number of Professors, and mentioned that twenty years ago the staff comprised only twenty Professors, and in the present year the staff of Professors numbered forty-three, and in the course of his remarks referred to the action of the Board of Works in connection with the new buildings.

OUR ILLUSTRATIONS.

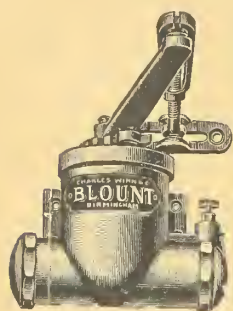
Baronscourt, Newtownstewart.

In this issue we publish a view of Baronscourt, the seat of the Duke of Abercorn, near Newtownstewart, Co. Tyrone. The house is a very pleasing and dignified mansion, not so rich in detail as certain other Irish mansions, as it does not belong to the best period, but it looks extremely well, and it owes much to the beautiful surroundings.

DEATH OF PROFESSOR VERNON HARCOURT.

Professor Vernon Harcourt, formerly Emeritus Professor of Civil Engineering, died last week. He was very well known as a writer on engineering subjects. It is not long since we reviewed a work of his on hydraulic and sanitary engineering. He was a relative of the late Sir William Vernon Harcourt.

Messrs. Norman Shaw and W. E. Riley, the architect to the London County Council, are now engaged in the selection of designs for the proposed County Hall. The authors of the designs selected will, with certain others specially invited by the County Council, compete in a final competition, the present being only of a preliminary character.

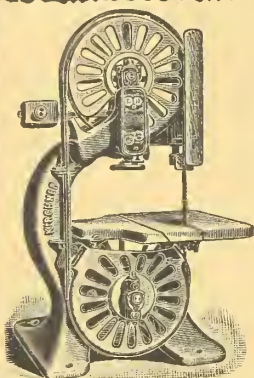


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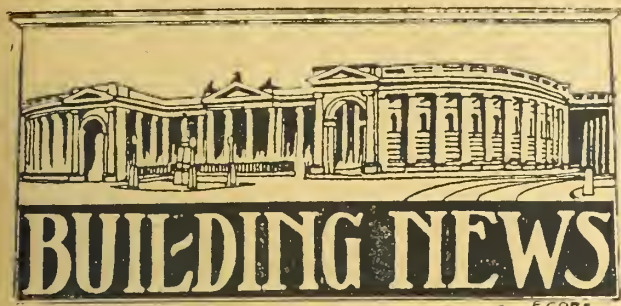
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Telegrams—"Timber, Dublin."

AGENTS FOR THE UNITED KINGDOM FOR
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ENQUIRIES AND ORDERS RECEIVE PROMPT AND
PERSONAL ATTENTION.



Ballyclare.—Tenders are under consideration for the building of new lapping room for Messrs. Kirkpatrick Bros., Ltd.

Belfast.—The tender of Messrs. H. Laverty and Sons, Ltd., has been accepted for the building of new organ chamber and gallery at Clarence Place Hall, May Street. The architect is Mr. W. J. Fennell, F.R.I.B.A. Quantities supplied by Messrs. McCarthy and Brookes.

The building of a new Methodist school-house, with science room, will shortly be commenced in Cambria Street, Shankill Road. The contractor is Mr. Isaac Copeland, Whitla Street. The architect is Mr. W. D. R. Taggart, C.E. Quantities were supplied by Messrs. McCarthy and Brookes. The estimated cost, exclusive of furnishing, is slightly under £2,200.

The Board of Guardians have at present under consideration the building of additional w.c. and lavatory accommodation at the buildings for epileptics, also alteration to nurses' home and new strong rooms. Tenders will be asked for at an early date.

A special meeting of the Belfast Corporation was held last week for the purpose of considering the question of a new abattoir. Plans were submitted for a new establishment sufficient to meet the requirements of the next fifty years, which it was estimated would cost £33,000 or £34,000. After over two hours' discussion the Market Committee were authorised to submit alternative plans of modern accommodation at the Stewart Street site, the total cost not to exceed £30,000.

Bray.—Henry Pemberton and Sons, Ballybrack, County Dublin, are building additions, alterations, and extension of cash offices at the Hibernian Bank premises, Main Street. The architects are Messrs. W. H. Byrne and Son, and quantities have been prepared by Mr. A. B. Bruntz.

Proposed Free Library.—At the last meeting of the Urban Council, Mr. Plunkett moved the adoption of the report of the Public Library Committee, and mentioned that the Committee were in hopes of securing an excellent site on Florence Road from the Quinn Estate free, it being understood that the Council would take the adjoining site at a rental if they required it for other public buildings. Mr. Jones objected to Mr. S. H. Bolton being appointed quantity surveyor in connection with the Purcell's Field scheme of artisans' dwellings. He said that such an appointment ought never to have been made, because the work assigned to him was properly the work of their own engineer, Mr. C. H. Sutter. Chairman—You were present when the appointment was made, and why didn't you object? Mr. Jones—I was not here, sir, when the appointment was made. I attended the committee meeting right enough, but I had to go away before it was over. I would have opposed this if I were here. What is Mr. Sutter paid for? If he is not fit for anything only supervising the men with the shovels and brushes working on the streets, he is no good to us, and we don't require him. The Town Clerk explained to Mr. Jones that the Council had no option but to appoint a quantity surveyor. The Electric Light Committee recommended that a small committee be appointed to consult with Mr. G. M. Harris, engineer, who had written to say that he thought he could get the Council a favourable offer for their electric light plant in case they desired to sell it.

Bangor.—Proposed Joint Library and Technical Institute.—A special meeting of the Bangor Technical Instruction Committee considered a proposal whereby advantage could be taken of an offer made by Mr. Andrew Carnegie of £1,500 for free library purposes in Bangor. Dr. Hew Morrison, who seemed to be Mr. Carnegie's adviser, had suggested that the Committee should obtain a loan of £1,000 to be used in conjunction with Mr. Carnegie's £1,500 for the erection of the joint building. He also advised the Committee to send sketch plans to him, and he would submit them to Mr. Carnegie. These plans were sent forward, and a letter was received from Mr. James Betram, secretary to Mr. Carnegie, stating that that gentleman had no objections to a joint library and technical institute, but stipulated that

the contracts must be kept separate, so that Mr. Carnegie should see exactly how the money had been spent. A plan was now submitted constructed in such a manner that the contracts could be kept separate. The chairman suggested that a deputation appear before the Council asking them to facilitate the Committee in obtaining a loan of the £1,000 necessary for the technical portion of the building, in lieu of which the Committee would be responsible for the interest on the sinking fund. It was resolved that a deputation consisting of the Chairman, the Principal, and Mr. Orr, appear before the Council, with power to make the offer.

Celbridge.—At the August meeting of the No. 2 Rural District Council, the Council's engineer, Mr. J. J. Inglis, 18 Nassau Street, submitted his estimate for labourers' cottages to be built according to design A, which was allotted first place at the recent Local Government Board competition. The estimate amounted to £215 16s. 2d., including fencing, the walls to be 14 in. brick. The Council, considering this price prohibitive, directed the engineer to prepare an estimate for cottages of the same design, but with 9-in. brick walls, to be submitted at the September meeting. This estimate amounted to £104 17s. 9d., and was likewise considered by Council in excess of amount to be allocated for each cottage. Consequently, the Council decided that Design A was impracticable, and discussed the other designs. Design H was subsequently adopted for cottages to be built in pairs, with the addendum that, in the case of single cottages, the three rooms were to be on the one floor, and the engineer was instructed to prepare an estimate for this design. A special meeting of the No. 1 Rural District Council was convened for Friday, 27th September, with the object of discussing its scheme, and the type of cottage to be adopted. This Council also did not approve of Design A, and the engineer was instructed to prepare estimates for Designs F and H, to be submitted to the next monthly meeting.

Cork.—Tenders have been received by the Cork Rural District Council for building 30 labourers' cottages and fencing same number of cottage plots.

Castletown (Co. Meath).—Extensive alterations and additions to the church at Castletown, including new chancel, side chapels, High Altar, etc., etc., are being carried out from the designs of Mr. Anthony Scott, M.S.A., architect.

Dublin.—The North Dublin Rural District Council have promoted a scheme of labourers' cottages, and an enquiry was recently held before Mr. Barnwall Crofton. The scheme contemplates the compulsory purchase of land in the districts of Blanchardstown, Castleknock, Coolock, Santry, Howth, and Raheny. The estimated cost of the scheme for the acquisition of land is £3,740; for fencing, £160; for legal, engineering, and other incidental expenses, £100—total, £4,000. It is proposed that the land shall be parcelled into 78 allotments. Under the second schedule it is proposed to acquire compulsorily plots of land in the same districts, and the erection thereon of 200 cottages. The cost of acquiring the land was estimated at £16,200; the fencing, £1,045; the building of the cottages, £30,305; and the expenses, £1,236—total, £48,786.

A new wing to the House of Retreat, Miltown Park, is at present in course of erection by Mr. Thomas Mackey, Lower Camden Street, from the plans and specifications of Mr. J. P. Wrenn, M.R.I.A.I. Quantities were prepared by Messrs. Mumby and O'Rourke.

The steel stands which are being erected for the Rugby Union at Lansdowne Road, by Moreland and Co., London, have been designed by Messrs. Donnelly and Moore, 10 Nassau Street, Dublin.

The Treasury having granted funds for the completion of the Royal Veterinary College Pembroke Road, tenders have been invited and received. The plans and specifications have been prepared by Mr. L. A. McDonnell, M.R.I.A.I., from whose design the previous work has been carried out. Messrs. Medcalf and Becket are the quantity surveyors.

Drumshambo.—Messrs. H. Laverty and Sons, Belfast, have secured the contract for the erection of branch bank for the Northern Banking Co., Ltd. The architect is Mr. G. W. Ferguson, C.E., Belfast.

Drumragh (Co. Tyrone).—A very beautiful window has been erected in the parish church in memory of the late Major Stuart. The window, which consists of two large lights, is in the south transept. Four scenes from the Gospel Story are represented, illustrating the central truths of the Christian Faith, the Annunciation, the Crucifixion, the Resurrection, and the Ascension. The figures and the colouring are very beautiful.

Downpatrick.—Messrs. McCartan and Co., of Castlewellan, have recently erected a handsome memorial over the grave of the late Very Rev. P. O'Kane, P.P. The memorial takes the form of a Celtic polished cross, with die and

base, axed sub-base, the whole weighing over six tons. The cross is engraved with Celtic characters, carved Sacred Heart and Thorns, chalice and sacred particle carved and entwined with shamrocks, and polished plinth and fine axed tall stones. The monument stands about 17 ft. high. Inside of the plinth, white marble chippings cover the grave, with a cross formed of black marble chippings in centre, giving good effect. The cross is regarded as one of the prettiest granite monuments in Ulster.

Kilkenny.—St. Kieran's College.—The new building recently erected stands at the rear of the College. In style it is perfectly plain, but in design is in keeping with the College. The building is L-shaped, three storeys high, built of local limestone, the exterior walls lined with brick and the exterior of walls plastered in cement and rough-casted; the dressings and quoins are cement, and the elevations are broken up by moulded strings, etc. On the ground floor are six large class rooms, each twenty-three feet long by seventeen feet wide and fourteen feet high. Recreation hall, eighty feet by thirty feet and sixteen feet high. Two staircases, one at each end of the building. One of these staircases is of granite, to which access can be got from all the dormitories. There is also on the ground floor, running the entire length of the building at rear, an ambulatory, with glass side and roof. This ambulatory is in all about 143 feet long by 16 feet wide, with tiled floor, so that it affords ample room for the students to exercise during inclement weather. All the class rooms and recreation hall open on this ambulatory. At the rear of the building there are two large sanitary annexes, fitted up in the newest and most approved manner, the walls lined with white enamelled bricks and the floors laid with tiling. Under the staircase building is a large heating chamber, which accommodates a boiler for heating the building and the water for bath-rooms, lavatories, etc. On the first floor there are five sittingrooms and five bedrooms, for the accommodation of the professors, a large dormitory, 80 ft. x 30 ft. and 16 ft. high, to accommodate thirty students, with sanitary annexe, bathrooms, etc., and music rooms. On the upper floor there is one large dormitory, 92 ft. x 32 ft., with open roof, which accommodates thirty-six students, an infirmary, infirmary's room, kitchen, and sanitary annexe. The infirmary is quite isolated from the rest of the building. The dormitories are divided into cubicles by pitch pine partitions, so that each student has a small room to himself. Great care has been taken with the ventilation of the building, the sanitary arrangements, and the sewerage. The new building is connected with the College by a corridor, which contains the music rooms, the trunk rooms, etc. The building work has been carried out in a most satisfactory manner by Messrs. John Ryan and Son, contractors, Lime-rick; the plumbing work by Mr. Robert Costello, of Waterford; and the heating by Messrs. Musgrave, Belfast; all from the plans and under the superintendence of Messrs. Wm. H. Byrne and Son, architects, 20 Suffolk Street, Dublin.

Lusk (Co. Dublin).—Mr. E. Hanway, North Great George's Street, Dublin, has secured the contract for building the new Carnegie Library at Lusk. Plans and specifications are by Mr. Anthony Scott, M.S.A. who has also prepared the design for the new Carnegie Library at Swords, for which tenders are now open.

Portrush.—Tenders are at present under consideration by the Board of Public Works for the fittings of new Crown Post Office, which is at present being erected by Mr. H. Keith, contractor, Belfast.

Sligo.—In an accident which occurred near Swinford, Mr. Peter Battelle, builder and contractor, of Sligo, lost his life. Mr. Battelle, who was engaged in building a chapel at Midfield, was proceeding on his way from Swinford to Midfield on a cart loaded with building materials. There were three other men also seated in the cart. About two miles out from Swinford the horse took fright, and bolted. The driver and the other men jumped off the cart, but Mr. Battelle, who was sitting in front, was caught by the shafts, and, falling from his seat, was dragged along the road. The horse fell, and the cart overturned, falling on him. Despite medical aid, he died shortly afterwards. Mr. Battelle had actually engaged an outside car to convey him to Midfield, but at the last moment he went on the cart. *Irish Times.*

Skibbereen.—At a meeting of above, the following letter from the Local Government Board was read:—"Sir,—Adverting to previous correspondence, and to minutes of proceedings of the Board of Guardians of Skibbereen Union on the 24th ult., the Local Government Board for Ireland desire to state that they have already pointed out the defects in the plans of the proposed medical officer's residence for the Drimoleague dispensary district, prepared by Mr. T. Donovan, and have informed the Guardians that they were

not prepared to sanction Mr. Donovan's employment as architect in connection with the building of the residence. The Board may add that their Engineering Inspector, Mr. O'Brien-Smyth, recently examined Mr. Donovan as to his fitness for employment in the Skibbereen Rural District under Article 50 of the Labourers Acts Order, and that he considers him eligible as clerk of works, but that he does not possess the necessary qualifications in designing or experience to fit him as engineer or architect. The Board have to request that the other designs for the medical officer's residence submitted to answer to the Guardians' advertisement of the 12th January last may now be forwarded.—I am, sir, your obedient servant, A. R. Barlas, Secretary." Mr. Beamish said he had handed in a notice of motion to have the matter reconsidered, and what he would like to know was whether they would forward the remaining plans to the Local Government Board or give directions to Mr. Evans, C.E., to prepare them. Mr. Timothy Donovan said he thanked the Guardians for the courtesy and consideration shown him in connection with this matter. There was nothing wrong in the plans, which were perfect in detail. He was of opinion that there was something wrong in some other place. He now unreservedly withdrew the plans. It was decided to send on the plans sent in by Messrs. Hennessy and Bowen to the Local Government Board.

Stewartstown.—Rev P. Quinn, P.P., has left for the United States for the purpose of raising additional funds to discharge a duty imposed upon him of erecting new schools in Coalisland, and also for the purpose of building a parochial house in Stewartstown.

TENDERS.

New Methodist School, Cambria Street, Shankill Road, Belfast. W. D. R. Taggart, C.E., architect, Wellington Place, Belfast. Quantities by McCarthy and Brookes, Scottish Provident Buildings, Belfast.

H. and J. McKibbin	...	...	£3,287	10	0
James Kidd	...	...	2,742	17	6
Courtney and Co.,	...	...	2,700	0	0
H. Keith	...	...	2,678	0	0
M'Intyre Bros.	...	...	2,674	0	0
Wm. Oliver	...	...	2,600	14	0
J. Elliott	...	...	2,565	0	0
Thornbury Bros.	...	...	2,495	0	0
James Hogg	...	...	2,370	0	0
* Isaac Copeland	...	...	2,245	0	0

* Accepted subject to some reductions.

BOOKS RECEIVED.

"**Cabinetwork and Joinery**," comprising designs and details of construction, with 2,021 working drawings and twelve coloured plates. Edited by Paul N. Hasluck, editor of *Building World*, etc. Cassell and Co., Ltd., London, Paris, New York, Toronto, and Melbourne. 1907.

"**The Widening Refinement in Rheims Cathedral**." By William Goodyear, Curator of Fine Arts in the Brooklyn Museum of Arts and Sciences; Honorary M.A., University of Yale; Honorary Member of the Society of Architects of Rome; of the Architectural Association of Edinburgh; of the Society of Architects; of the Royal Academy of Milan, and of the Royal Academy of Venice, and Corresponding Member of the American Institute of Architects. London: Privately printed for the author. 1907.

"**Examples of Classic Ornament from Greece and Rome**." Drawn from the originals by Lewis Vulliamy, Architect, Gold Medalist, and Travelling Student of the Royal Academy (1790-1871). A series of twenty plates, selected from the original published work, and with introductory and descriptive notes by R. Phené Spiers, F.S.A., F.R.I.B.A., author of "The Orders of Architecture," "Architecture East and West," "Architectural Drawing," etc. London: B. T. Batsford, 94 High Holborn. 1907.

The flotation of a great military balloon, or, rather, airship, has been followed with the greatest interest. It recalls a rather good story told of the Royal Engineers responsible for the building of the balloon house in which the airship was constructed and housed. It seems that a predecessor of this balloon having been designed, laid down, and duly completed in a specially constructed building, it was found that no means of egress had been left for the airship, which, consequently, could not get out until one of the walls had been thrown down. The truth of this story is vouched for by some of the English papers.

ENGINEERING SECTION.

ITEMS.

The restoration of the Auld Brig of Ayr, the threatened demolition of which raised such a furore some months ago, is proceeding satisfactorily, about twenty-four men being at present employed on the work, and the cost of which, to date, approximates to £800. The pointing of three arches and piers is complete, and the roadway, having been removed, the arches have been strengthened by a concrete covering. The cross walls at the piers, and the central spandril walls are all finished, and the excavation for the underpinning is in hand. The progress of the latter work is naturally slow, as the available space is confined, and only two men can be employed together.

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The results of recent experiments and tests with oil as fuel for Navy purposes point to the fact that its use has proved entirely satisfactory. On the Gosport side of Portsmouth Harbour huge reservoirs are to be constructed to store 20,000 tons of oil, and extensive dredging operations are to be carried out in the vicinity, in order to permit the near approach of warships for the purpose of taking in supplies. In the present condition of the coal market it is somewhat encouraging to find that such an efficient substitute has been discovered; the general use of oil fuel in the Navy and Merchant Service would rapidly depreciate the value of coal to a price more readily accessible to the average householder.

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The condition of railway affairs is not at all satisfactory, and although Mr. Bell, the Union organiser, does not appear to be quite happy in his position, and is somewhat uncertain of the future, yet the existing disturbed relations between the railway companies and the men have already affected business to a marked degree. The chief danger lies in the fact that everyone considers that such an upheaval, as would be caused by a railway strike, could not possibly occur, and it is not unlikely that, without due thought, the men will suddenly find themselves *volens volens* in the thick of the fray. The deadlock that would occur in the engineering world alone is practically beyond imagination, and the recent revival of trade would receive a setback that would undoubtedly be felt for years. It is, therefore, devoutly to be wished that wise counsels will prevail before it be too late, and that the men and their employers will settle their differences without involving the kingdom in a struggle, the ultimate consequences of which cannot be foretold.

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There is possibly no question which proves more vexatious to the engineer than the difference between a sewer and a drain. From time to time various legal decisions are given, many of which throw absolutely no light on the subject, and, even if a fairly concise definition is obtained one day, the next day another judgment causes further chaos. On one phase of the question, however, it appeared that there was concord, that when a sewer exists in a road, whether such road be public or private, all adjacent owners have a right, under the Public Health Act, 1875, of connecting their drains to such sewer. But the case of *Wood v. Ealing Tenants' Lands*, recently decided in the King's Bench Division, will re-open even this phase, for Darling and Lawrence, J.J., held that an abutting owner has not the right to connect his drains to a sewer so laid, unless he pays compensation to the owner of the soil of the freehold; nor could a local authority lay the drain for the private owner without paying compensation. This decision is of much importance to municipal engineers, and the case is one which it will repay them to study.

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The deteriorative effect of motor traffic on road surfaces is a subject that is gradually receiving closer attention from county surveyors who find that the expenditure on maintenance and dust prevention is becoming abnormal. The County Surveyor of Kent, in his annual report, states that in the year ending March 31st last, over £4,000 were expended in treating roads with tar, and erecting motor car signals, and a further sum of £6,000, which could be attributed, more or less directly, to the rapidly increasing form of traction. The wear on the road surface is due to the steel studs and bands on the tyres, combined with high speed. The Bridges and Roads Committee bear further witness to the truth of the matter, and properly call attention to the fact that the cost of tar spraying and the in-

creased expenditure on road maintenance falls entirely on the ratepayers, while the cause is due entirely to one section of the community. While increased motor traffic is beneficial to the inhabitants of certain centres, yet it is the ratepayers of the environs of that centre, for a distance of some forty or fifty miles, who suffer and who obtain no benefits, and the time is rapidly approaching when the burden will have to be removed from the country ratepayers to motor car and van owners. To achieve this end will need united action on the part of the various urban and rural district councils, whose engineers will prove most effective witnesses of the increased cost of road upkeep. Nor is it likely that the motor owners will raise serious objection to such a change, provided that their contribution is really expended on the gradual improvement of the roads.

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A very serious mishap has occurred at the reservoir which has been constructed, for the Metropolitan Water Board, near Highgate. The work had passed the final inspection when, a few days subsequently, one of the retaining walls gave way, the peculiarity of the circumstance lying in the fact that bulging was inward, owing to the earth pressure outside. In designing the retaining walls to withstand the internal water pressure, the fact that for a considerable time the pressure is entirely external may have been overlooked, for in the present case it is assumed that, had the reservoir been full of water, the equilibrium of the wall would not have been disturbed. Another feature of the case is that the masonry is so solid that hand labour is useless for the purpose of demolition, and dynamite has to be employed, clearly indicating that the failure is not attributable to bad work. The cost of making good the collapse will cost over £6,000, a rather heavy sum to accrue at the last moment after the work had been pronounced satisfactory, and it will be interesting to observe the reason that has caused this important hydraulic work to become unstable.

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While railway affairs at home are stagnating, and the manufacturing world is waiting the results of the men's ballot with but an ill-concealed dread, tunnelling operations in Switzerland are being pursued with an energy which has never been paralleled. Besides the Loetschberg tunnel, which is under construction as an addition to the Mont Cenis, the St. Gothard, the Simplon, and the Hauenstein tunnels, there are seven or eight more under consideration, including a tunnel parallel to the Simplon, a similar work beneath the Jura, another through Mont Blanc, and a new tunnel at a lower level in place of the Hauenstein. Such vast schemes are surprising, and it is difficult to realise how they can hope to be financially successful; however, the facilities for travelling are greatly increased, and the exploitation of the tourist has ever been found to pay. The new Simplon tunnel is to be somewhat wider than the first, and the engineers, having learnt the lesson of experience, are to provide a special culvert for the hot water. The cost of this tunnel alone will approximate to one and a-half millions. The tunnel through Mont Blanc will be about eleven miles long, and the highest altitude attained 6,500 feet above the sea. When it is completed there will be rapid and direct communication between Aosta and Chamounix.

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The Brickbuilder, U.S.A., which may, perhaps, be a somewhat prejudiced journal, rather sharply criticises the general results of the concrete-cum-steel era. Longfellow has a very apt quotation in which he refers to "architecture existing in itself, and not in seeming a something it is not." If the poet could view our architecture of to-day, as we sometimes see it, he might have to recast his characterisation, especially in view of the way in which concrete is being used. We have no fault to find with the material; it is flexible, readily adaptable to all sorts of emergencies, and when properly used and applied is a valuable aid to the contractor and the engineer; but the really satisfactory treatment of concrete as concrete, from an artistic standpoint, still remains to be achieved. If one cares little how badly it looks, how much it catches the dirt, how much it may be streaked or variegated in tone, or how unevenly its surface may ravel, there will be little worry; but no one could feel quite happy with the appearance of any structure, however utilitarian, which presents the outward aspect of even the best of our concrete work. It exists in seeming what it is not, or else it exists as an unsightly blotchy wall surface of thoroughly undesirable

appearance, with which the only thing to be done is to charitably cover it with a coat of paint and forget its individuality. The Stadium at Harvard is an example of how to treat concrete work. Attempts were made to finish the surface with hammering, with a wash of cement, with the trowel, and with no treatment at all, leaving the imprint of the casing boards on every surface. To the true artist the latter is preferable. It is frankly constructive, and does not masquerade as imitation. But it is by no means alluring.

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That hardy perennial, the Cork water supply question, has once more appeared at the Council Board of the Corporation. It seems that while ninety-five per cent. of the water supplied to the city is most efficiently filtered, yet the remaining five per cent. is drawn directly from the river and allowed to mingle with the pure water. The theory is that the solution is of such weak nature that it becomes harmless, although an analytical chemist might be somewhat sceptical of this optimistic belief. To a practical engineer it would seem a thousand pities that such a large volume of water, after being carefully treated, should be placed under suspicion by the admixture of even a small proportion of river water, and this view seems to have occurred to certain members of the Corporation, who fear that the admission of the river water is not always confined to the recognised limits. Three solutions of the difficulty have been advanced—that the filtration system should be extended to meet all demands, which is, however, said to be impracticable; that the admission of river water should be permitted only under the watchful eye of two members of the Corporation, a somewhat thankless task; and that efforts should be made to curtail consumption throughout the city, so that the present amount of filtered water may meet all requirements. As this latter suggestion would entail but a loss of about one and a-half gallons per head, without taking into account a waste of water which could be diminished by careful observation, it seems the most sensible. In any case, it may be taken for granted that the burgesses of Cork would prefer a water supply absolutely above suspicion to one which has the bacterial taint, however weak the solution. The whole matter is curious, and seems essentially to call for a strong man to deal with it.



REGISTRATION IN AMERICA.

Facts and Figures.

According to a statement by Mr. N. C. Ricker, there were 704 licences in force on the 1st December, 1906. Of these 203 are the licences of those who have passed the Board's examinations, and 501 are of those who received licences without examination by reason of having been in practice at the time of the passage of the Act. This shows a proportion of two-sevenths of the whole number to be in the position which the Act contemplated should eventually be that of all practising architects of the State (Illinois). It is the experience of nearly ten years of the existence of this Board. Another ten years will, undoubtedly, show a very much larger proportion of architects holding legal evidence of qualification. By the end of thirty years nearly all the architects will, undoubtedly, be holders of certificates of qualification.

But it is not to be inferred from this that the 501 are not qualified. This number comprises the older practitioners, and among them are the most eminent men in the profession.

The number of licences issued without examination during the six months' limit after the passage of the Act, was exactly 700, and the fact that only 501 of these are now in force demonstrates that 199 have either died, removed from the State, or given up the profession. The Board has every reason to know that most of them are in the latter category, and that their failure to succeed has been mainly due to the fact that they were unfitted for their professional work. This number almost exactly balances the number of new men licensed, all of whom are believed to be competent. The actual number of practising architects remains about the same as it was ten years ago. Can anything show better than these figures the elevation of the profession through the establishment of the examination and licensing system?

California's Licensing of Architects.

The California State Association of Architects have introduced a Bill into the Legislature of that State for the licensing of architects, which is alleged by its opponents to be devised to prevent any carpenter, builder, or private individual from erecting from his own plans a building intended for his own use. By this new Bill an architect must be employed in connection with every building of any and every size and cost, wherever and by whomsoever erected in the State of California.

STONE FOR THE NEW COLLEGE OF SCIENCE.

At the last meeting of the Dublin Industrial Association, the secretary read the following letter from the Board of Works, Dublin, in reply to Council's letter regarding the use of Portland stone for the building of the Royal College of Science, Dublin:—

12th September, 1907.

SIR,—I am directed by the Commissioners of Public Works to refer to your letter of 3rd inst., relative to the stone to be used in the new Royal College of Science, and in reply to direct your attention to the reply to the question put in Parliament by Mr. Mooney on the 21st ult., from which it will be seen that the Council have been misinformed in the matter. It is not proposed to erect the superstructure of the Royal College of Science of Portland stone.—I am, sir, your obedient servant,

T. F. FOLEY, for Secretary.

The Secretary, D.I.D. Association.

It was pointed out that while the Board of Works only referred to the "superstructure" not being built of Portland stone, they avoided stating what stone was to be used.

The Council agreed to instruct the Secretary to point out to the Board of Works the many public buildings—Post Office, etc.—in Ireland that were built under their authority, from Mountcharles stone, and to say that they considered native stone the most suitable for the purpose; also to ask them for a copy of the specification issued, of the materials to be used, so that the Council may see how far "Irish materials" have been specified for. It was also agreed to ask them what materials they propose to use in the proposed new Post Office at Blackrock.

At a meeting of the Association on Monday, further correspondence was received from the Board of Works, regarding the stone to be used in the building of the Royal College of Science and the new Post Office in Blackrock, stating that "as regards the latter building the specification would provide, as far as possible, for the use of Irish materials, provided these could be had of suitable and approved quality within reasonable limits of cost, and that satisfactory assurances of prompt delivery were forthcoming." There was a separate letter forwarded in reference to the part of the Council's letter relating to the Royal College of Science.

This letter stated that "the Board was not prepared to send a copy of the bills of quantities, as requested, except to persons who proposed to tender, but that they would permit a representative of the Association to see the bills at that office if desired." The Board also forwarded a copy of the letter which had been sent to the Lord Mayor of Dublin on the subject, adding that the letter explained the Board's views on the question of using Irish materials, and the Association would probably not now wish to send a deputation, as suggested in the letter of the 24th September.

The letter to the Lord Mayor set out that the Board had, from the inception of the design for the College, present in their minds the considerations set forth in that letter, i.e., that "it is desirable to make use of Irish materials for the structure, so far as is consistent with a due regard to quality and price."

The letter went on:—"The Board are glad to be able to inform you that their architects have advised them that the fulfilment of these conditions is consistent with the use of Irish materials throughout for the greater part of the structure, and accordingly the structural materials for the ground floor of the building, other than steel and ironwork, consist entirely of Irish brick faced with Irish granite. The specification for the remainder of the building provides that the same structural materials shall be used; and the Board have every confidence that this will be carried out. As regards the ornamental dressed stone facings, however, on which the decorative effect of the building will largely depend, the case is different. The Board obtained from their expert advisers special reports on this point. They are informed that the kinds of Irish stone which could be used for this purpose are three—viz., granite, limestone, and sandstone. The cost of working in granite the kind of decoration which is required would be prohibitive."

Continuing, the letter stated:—"Acting on the advice of their architect, the Board decided that Portland stone must be used for the ornamental work. The specification, however, provides that the stone is to be dressed in the contractor's yard."

A member remarked that that was all very well, but that the contractor might be living in Jerusalem.

The Council referred the whole matter to a committee to go fully into and to ask the Board of Works to receive a deputation from the Association.

Of course, there is not the slightest necessity to import Portland stone, nor can we admit that the cost of working ornamental detail in Irish stone would be prohibitive.

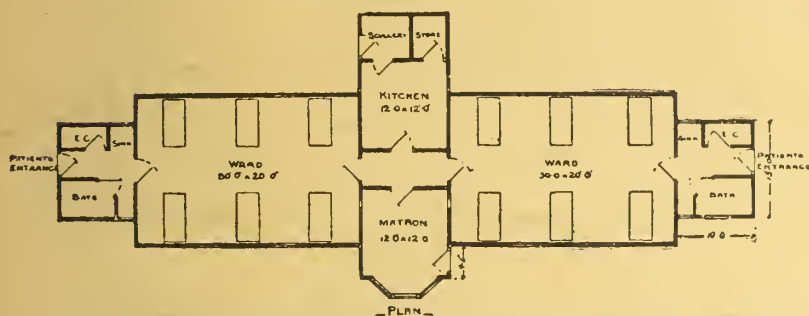
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BLACKROCK MAIN DRAINAGE.**The "Shone" Ejector System.**

On Tuesday last a number of gentlemen interested attended at Blackrock, at the invitation of the Urban Council and the contractors, Messrs. Hughes and Lancaster, whose representative, Mr. Bell, made the following statement:—When "Mr. Skone" designed his pneumatic ejector it was with the object of enabling engineers to carry out sewerage schemes on scientific lines, overcoming the difficulties met with in laying comparatively shallow sewers at self-cleansing gradients in flat areas, and also to effectually deal with unscreened sewage, the inlet and outlet valves being of sufficient size to permit everything flowing down the gravitating sewer to flow freely through the ejector. The ejector was also designed to last as long as an ordinary cast-iron pipe would do, with a minimum cost for upkeep of valves. The first pair of ejectors were put down 26 years ago at Eastbourne, in the Wish Valley, near Devonshire Park, and these have continued to work day and night ever since; in fact, some of the best residential mansions in Eastbourne are situated in that district depending entirely upon these ejectors for the removal of the sewage flowing from them. With the exception of an occasional new cup leather for the pistons of the automatic valves, there has been practically nothing done to them since they were first installed, and at the present time Eastbourne has an installation capable of dealing with 14,600,000 gallons per day. As a contrast, I might mention pumps that were installed in a town in the lower Thames Valley, about 1890, where four hydraulic pumping stations were erected, and I have been informed that the pumps at the four stations have been renewed three times since then at a very considerable expense to the authorities, and have been finally abandoned, just as the pumps here at Blackrock have had to be given up. The Local Government Board of England have recognised the extended life of "Shone" ejectors by sanctioning loans for repayment over a period of 30 years, instead of 15 years—the time allowed by the Board for ordinary pumping machinery. Although the "Shone" system is by no means a new system, as I have already pointed out, it is nevertheless new to Ireland, and this scheme at Blackrock is the first to be carried out (if I except two small installations which are in operation—one at Maryborough Asylum and the other at Tullamore Work-house).

Mr. Kaye-Parry, J.P., Engineer, made the following statement:—The main drainage system of the Urban District of Blackrock, Co. Dublin, as it was constituted in 1896 from the designs of the late Mr. W. G. Stryke, C.E., rendered it necessary that the township sewage should be lifted at three points on the coast from the sea level to a sewer in the road, whence it flowed by gravitation to the outfall. The three lifting stations were placed in the People's Park, Blackrock, at Tobernea terrace, Seapoint, and at Brighton Vale, Monkstown. A power house was erected at the back of the Blackrock Municipal Buildings. Power was obtained from a pair of gas engines driven by gas supplied by the Alliance Gas Company. These engines actuated hydraulic machinery whereby water at a very high pressure was transmitted through steel mains to three pairs of hydraulic pumps placed in the lifting stations already referred to. These pumps lifted the sewage from the sea level to the gravitation sewer. This installation was never very successful in dealing with the crude sewage. Screens had to be provided to intercept the larger solids, and both the pumps and the air mains required constant repairs. Last year the machinery broke down completely, and it became absolutely necessary either to fix new pumps and mains or to adopt some other system. After very careful consideration, the Drainage Board, on the advice of their Consulting Engineers, Messrs. Kaye-Parry and Ross, decided to abandon the original plant and replace the pumps by "Shone" ejectors. This alteration did not involve any change in the main drainage system. The three lifting stations and the power house were all utilised, but an entirely new method was necessitated. The present plant consists of a pair of gas-driven air compressors; the gas is generated at the power house by means of the Dynamic Gas Company's plant. The power to work the ejectors is transmitted by means of cast-iron compressed air mains to the ejector stations. Each lifting station is provided with a pair of "Shone" pneumatic ejectors placed at such a level that the sewage flows into them from the low level sewer. As soon as an ejector is full a float opens the compressed air main, and the sewage in the ejector is forcibly driven by the air through the rising main to the high level sewer. There are no pumps, pistons, or other working

parts to wear out or give trouble. The air itself comes into direct contact with the liquid, and literally blows the contents of the ejector up the rising main. As the ejectors are duplicated and work alternately the sewage is constantly flowing through the sewer and through the rising main. No screens are required to separate the solids, for the entire contents of the sewer, both solid and liquid, pass rapidly and readily through the ejectors, and everything is transported to the high level sewer. As there are no sumps or collecting chambers no gases are evolved, and no nuisance is created. Moreover, the machinery is of such a simple character that the ejectors in the three lifting stations will work automatically for a long period without any attendance. Very great economies are effected by the present installation. Suction gas is much less costly than town gas, and the working expenses in this and in many other ways have been greatly reduced. By arrangement with Messrs. Hughes and Lancaster, by whom the whole of the machinery has been supplied and erected, the payments have been spread over a period of years, and the actual cost per annum to the ratepayers, both for payment of the annual instalments and for working expenses, will not exceed the cost hitherto incurred under the old regime for working expenses alone. At the end of five years the new machinery will have been completely paid for, and at the expiration of that period the ratepayers will reap the full benefit of a thoroughly efficient power plant capable of dealing with the township sewage under all ordinary weather conditions, whilst the working expenses will be less than half the figure at which they stood whilst the hydraulic plant was in use. The ratepayers, therefore, can confidently look forward to a substantial reduction in the drainage rate in the near future. "Shone" ejectors on the same system have been in use in many towns in all parts of England, in India, and in other places for upwards of a quarter of a century. At Eastbourne, where the ejectors have been in use since 1881, both the compressors and the ejectors are still in excellent condition. No apprehensions, therefore, need be entertained as to the permanent efficiency and economy of these works. The whole installation has been carried out from plans and specifications prepared by and under the personal supervision of Messrs. Kaye-Parry and Ross, Consulting Engineers to the Board, with the assistance of Mr. Henry E. Powell, C.E., District Engineer. The building works in connection with the necessary alterations to the power house and the lifting stations have been executed by Messrs. Alexander Fraser and Co., Quinsboro' Road, Bray.

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LAW CASES.
The Blackrock New Drainage Scheme.

In the Chancery Division, before Mr. Justice Dodd, sitting as Vacation Judge, the application came on for hearing of Mr. Francis Sweeney, owner of 5 Idrone terrace, Blackrock, that, pending the hearing of his action against the Blackrock and Kingstown Drainage Board and their drainage contractors, the defendants might be restrained from using and managing, on their premises, the Town Hall, a gas engine, so as to constitute a nuisance to the plaintiff. The application was grounded on the affidavits of Mr. Sweeney and Mr. J. J. Inglis.

Mr. James O'Connor, who (instructed by Mr. J. J. McDonald) appeared for the plaintiff, said the motion was one for an interlocutory injunction to restrain the defendants from working this engine, which was used for pumping certain sewage. Having regard to the affidavits put in by the other side, he and his friends, who appeared for the defendants, were satisfied that they might let this motion stand till the hearing of the action—having regard to the questions of public importance involved in the matter.

Mr. Justice Dodd—You don't ask to stop them now from doing anything?

Mr. O'Connor—I am afraid I could not ask to interfere with what they are doing now. Mr. O'Connor said, further, that he did not want any undertaking.

Mr. John Gordon, K.C., M.P., who, with Mr. E. A. Collins (instructed by Mr. Collins, of Messrs. Casey and Clay), appeared for the Council, said they believed they had a perfectly good answer to the action.

Mr. Justice Dodd—Is it a noise that is complained of?

Mr. O'Connor said it was only a noise, but it was rather intolerable.

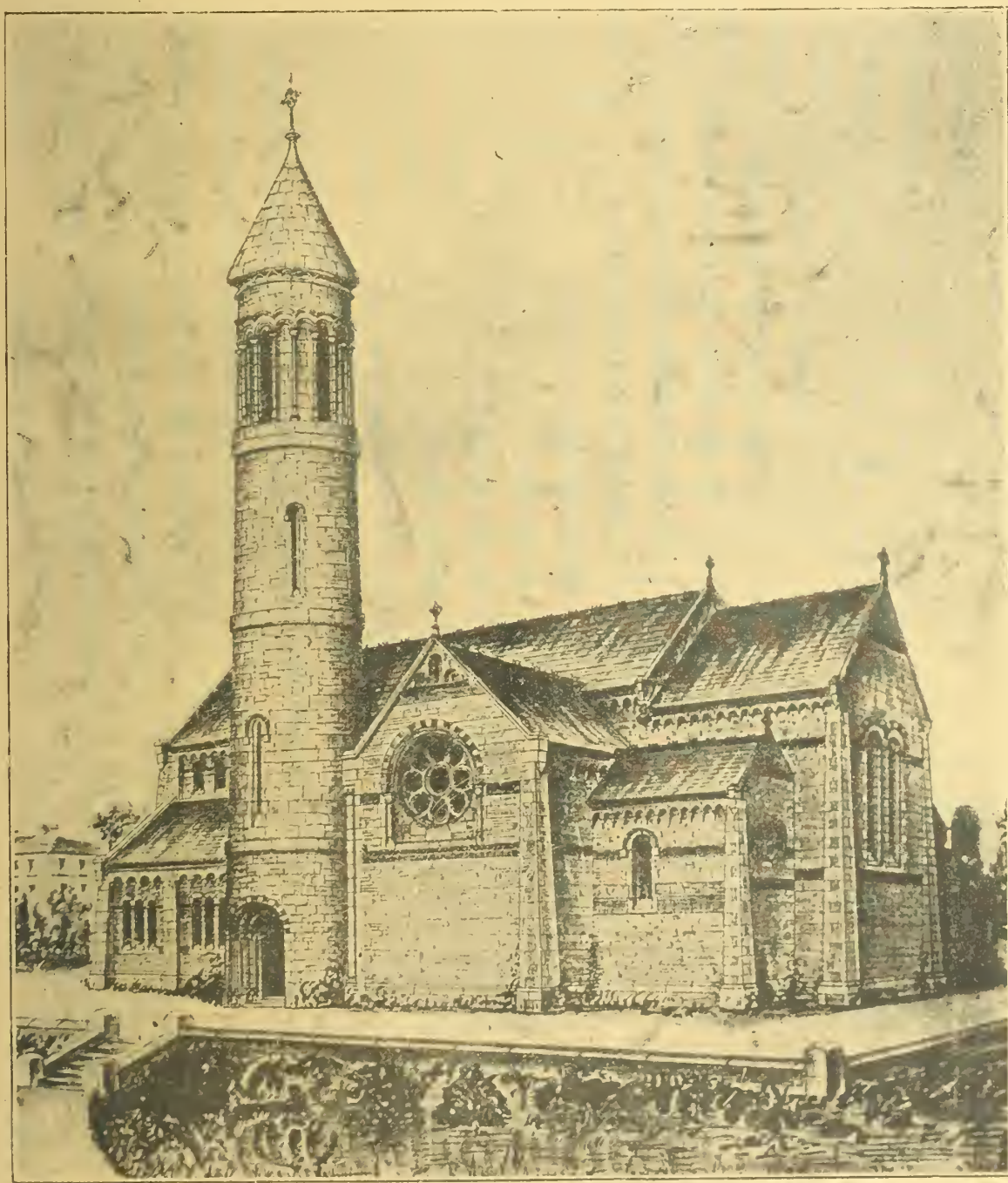
Mr. Justice Dodd adjourned the hearing of the motion till the hearing of the action.

Mr. E. Coll (instructed by Messrs. David T. Fitzgerald) appeared for the contractors.

NEW CHURCH AT TIMOLEAGUE.

His Lordship the Most Rev. Dr. Kelly, Bishop of Ross, performed the ceremony of laying the foundation stone of the new parish church for Timoleague. The architect who has been entrusted with the designs of the new church is Mr. M. A. Hennessy, of Cork. In this new church of Timoleague he has made a true revival of Celtic Romanesque. Features of the primitive centuries have been recalled to begin a new existence in this southern spot. The church is comprised of a nave, aisles, and transepts, with side chapels and sacristies, together with the novel feature of a round tower, an adjunct to one of the

aisles. The altar is approached from the sacristy by another archway of spacious dimensions, springing from corbels, the lateral support on one side being the great pier, flanked by cluster columns. One of these on either side of the nave supports the arch of the chancel. The nave and chancel are vaulted over by a series of oblong quadripartite vaults, with intersecting ribs. The Baptistry is situated between the round tower and the last bay of the aisle. It is an oblong apartment, vaulted over between the aisle wall and the tower, with a door opening from the transept. There are four recesses having pillarettes, the inner one having its companion attached to the central pier supporting the tympanum. Blocks of stone are to be inserted for sculpture.



The new church at Timoleague.

Architect, Mr. M. A. Hennessy.

transepts. The interior measurement of the building on the axis line is 107 feet, width of nave 26 feet from centre to centre of columns, width of aisles 12 feet, width of transepts 21 feet, from one transept gable to the other 70 feet, depth of side chapels 14 feet, priests' sacristy 14 feet by 13 feet 6 inches. The boys' sacristy is a well-provided accommodation. Both apartments are protected from draughts by a handsome porch. The clerestory walls are carried over three bays as far as the transepts, where a junction is made with massive piers that rear their lofty arches above the nave floor. This arrangement effects a domination of the nave roof over that of the chancel. Close by the narthex on either side are two arches that give entrance to

The capitals are to be carved in accordance with the style of the building. The archway overhead carries four orders of archivaults, encircled by a fine label moulding. Surmounting the doorway is a projecting string course, which is also a base for the fine triple light window. Over this, in the gable, is a lancet window, with two bays of panel work at each side. The clerestory is divided into bays, formed by outstanding piers, the position of each being, as it were, a vertical continuation of the buttress underneath. The eave courses are supported by circular heads, resting on corbels, that give an embattled appearance to the top of the walls. The aisle windows are lofty triplets, and, though plain in treatment, look well. Those of the clerestory are similar to

the aisles, only being duplicate. The gables of the chapels are lighted by handsome windows of four circular figures, with cusped perforations, while the sides have single round-headed lights. The chancel gable has a window equal to that of the west front over doorway, as already described. Between the third bay of the aisle and the transept wall the baptistery is placed. It has a circular end where it strikes into the round tower, forming a cusp on plan. It is approached by two entrances, one internal, leading from the transept, and the other through the splendid porched doorway of the round tower. The ceiling of the baptistery is a half-barrel vault, and over the oblong chamber must have a good effect. The round tower is in three storeys. A cut-stone band on the outside shows the position of each floor. It is intended to build about 20 feet of the tower in connection with the new building. It is important to state that all the dressings of external doorways and windows, string courses, crosses, etc., are to be of chiselled limestone. The Little Island quarries are to supply the material. The buttress groins are also of limestone. The rough stone is all to be dressed on the new church grounds. The masonry is of broken ashlar. The contractor is Mr. Daniel Murphy, of Bandon. The slates to be used will be procured from the Killaloe quarries. The foundation stone is of finely dressed solid limestone.

ENGINEERING NEWS.

Armagh.—Tenders will be received on October 8th for removing old boiler and pipes, etc., at Armagh Workhouse, and supplying and erecting new boilers, steam pipes, etc., for the Guardians.

Cork.—The Cork Rural District Council invites tenders for: (a) Sinking well, supplying and erecting pump at Donnybrook, Douglas; (b) deepening well of pump at Bellgrove, near Queenstown; (c) cleaning well of pump at Ballynoe, near Queenstown; (d) cleaning well and repairing surroundings of pump at Shanbally; (e) cleaning village of Glounthane, caring sluice, and caring urinal (to be erected), for one year from October 5th, 1907; (f) caring and keeping in repair the Factory Hill waterworks, fountains, etc., for one year from October 5th, 1907; (g) sinking well, supplying and erecting pump at Killeagh Cross. Forms of tender may be obtained at office of Mr. John Cotter, Clerk of Council, Boardroom, Workhouse, Cork.

Clones.—Tenders will be received on October 14th by the directors of the Great Northern Railway Company for the construction and erection of a steel umbrella platform roof, 132 feet by 21 feet 6 inches, at their Clones station; also for supplying and delivering at their Drogheda Station 20 steel cross girders, weighing rather less than 1 ton each.

Clonmel.—The Board of Guardians of the above Union will to-day, 5th October, consider tenders for executing certain works in connection with the cooking, laundry, and drying rooms in the Clonmel Workhouse. The works consist of the providing, fixing, and leaving in full working order the following machinery, viz., one 16 ft. x 5 ft. Cornish boiler, one "Worthington" pump, two wash-up sinks, steam exhaust, hot and cold water connections, one water heater, 4 ft. high x 2 ft. diameter, fully fitted; two copper boiling troughs, thirteen gunmetal water cocks, a set of nine steam radiators, all steam, cold water, and hot water connections.

Dublin.—At the last meeting of the North Dublin Union, a letter was read from the Lighting Committee of the Corporation with reference to a letter of the Guardians concerning the lighting of the North Dublin Union and the Richmond Asylum with electricity. It would be necessary, the letter, added, to have all the particulars supplied before anything further could be done. Mr. Rooney asked the Clerk how much the Guardians paid at present for the lighting of the institution. The Clerk said that it was, roughly, between £800 and £900 a year. Mr. D. Doyle—That is a lot of money. We now pay it to a private company. It would be a great matter if we paid it into the account of the ratepayers of the city. (Hear, hear.) Mr. Dinnage suggested that the Board should first ask if the Gas Company would agree to supply the gas at a lower rate than the present rate. It was decided to ask Mr. Morris, Clerk of Works, to report, and a committee was appointed to meet and consult with him.

Dungarvan.—Mr. O'Shee, M.P., attended a meeting of the Dungarvan Urban Council, and explained a scheme for the construction of a bridge and causeway to the Cunnigar, and the reclamation of the Western Bay, which would leave 1,000 acres of alluvial soil for the benefit of the community. According to the estimate of Mr. McConnell, engineer, the work would cost £25,000. He asked the Urban Council to guarantee £5,000, which would be 3d. in the £ on

Dungarvan Urban, and 1d. in the £ on the Rural District. The Council unanimously approved of the project.

Londonderry.—The Londonderry No. 1 Rural District Council invite tenders for the execution of a sewage scheme in the townlands of Shantallow and Ballynashallog, in accordance with plans and specification prepared by Mr. M. A. Robinson, C.E., M.R.San.Inst., Richmond Street, Londonderry. Tenders will be received on Saturday, 12th October, 1907.

Portrush.—Tenders have been received for complete lighting installation by means of either electricity or gas, for the Portrush Urban District Council. Mr. John Woodside, A.M.Inst.C.E., Ocean Buildings, Belfast, is the engineer.

Skerries.—Tenders are invited up to 9th October for the construction of a flushing tank at Skerries, in accordance with plans by Mr. Anthony Scott, M.S.A.

Tramore.—A new pier has just been completed at Tramore, and formally opened. The pier, which was built by local labour under the supervision of the County Council and the County Surveyor, Mr. Duffin, C.E., cost about £5,000, the Department contributing one-third, Waterford County-at-large one-third, and the district of Tramore the remainder.

Thurles.—The waterworks scheme, which has just been completed to the satisfaction of the Council's engineer, cost only £8,930, or £726 less than the engineer's original estimate. Mr. Bergin, of Dublin, was the engineer.

Trim.—Messrs. McKee and McNally, Dungannon, have commenced work on the new waterworks. An interesting feature will be the construction of a water tower by the Hennebique Co., 30 feet in height, of ferro-concrete, capable of holding 50,000 gallons. This is the first tower of its kind erected in Ireland under the approval of the Local Government Board. The Congested Districts Board are, however, putting one up in the West. The plans of the Trim waterworks were prepared by Mr. F. Bergin, B.E.

MESSRS. BUICK AND SONS' STAND AT THE EXHIBITION.

We would direct our readers' attention to the sanitary exhibit of Messrs. Chas. Buick and Sons at the Exhibition. To anyone interested in modern sanitary fittings, it will undoubtedly repay a visit. The stand is No. 1,123, and is situated about midway in the Machinery Hall, on the right-hand side. Messrs. Chas. Buick and Sons are a very old-established firm, and their enamelled goods have a world-wide reputation. In using their goods one has the satisfaction of knowing that they are getting the best that can possibly be turned out, and all that experience and skill can suggest. The goods displayed are numerous and varied, consisting of sinks, closets, lavatory basins, baths, urinals, wash tubs, fish slabs, mortuary tables, and samples of their well-known glass glazed sewerage pipes, and all the usual Dublin traps and connections. The prices are exceptionally low. The stand is beautifully got up, and the firm are certainly to be commended for their enterprise; they are one of the few sanitary firms who have exhibited at our Exhibition. Messrs. Glorney, of Poolbeg Street, are the agents in Dublin, and hold a large stock. Further information can always be obtained from them.

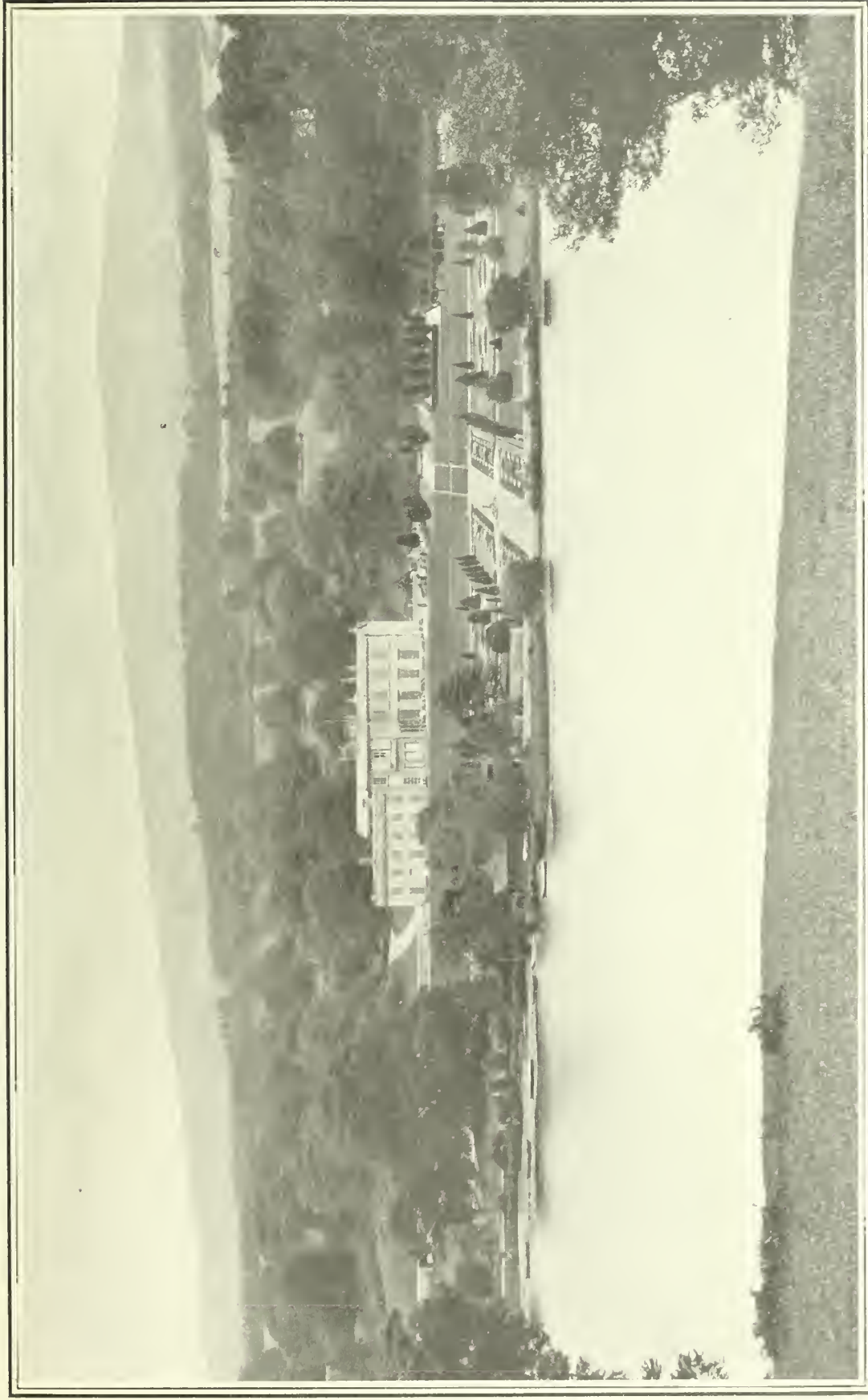


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October 19, 1907.

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TOPICAL TOUCHES.

Mr. David Burtchael, B.E., has been appointed Resident Engineer for the Howth Waterworks Scheme about being started. Messrs. Kaye-Parry and Ross are the engineers.

* * * *

Some admirable evidence was given before the Railway Commission on Monday last by Mr. James Kiernan, building contractor, Dublin, and proprietor of the Stradbally Limestone Quarries.

* * * *

The play, "The Beloved Vagabond," produced for the first time by Mr. Beerbohm Tree during his engagement last week at the Theatre Royal, was written by Mr. W. J. Locke, Secretary of the Royal Institute of British Architects. Both Mr. Locke and Mr. Tree scored a big success.

* * * *

At the last meeting of the Dublin Corporation a letter was read from the Local Government Board conveying their sanction to a loan to the Corporation of £134,842 8s. 6d. for the purpose of constructing an additional storage reservoir at Roundwood, in connection with the Vartry supply, and notwithstanding their objection to the proposed form of specification. This objection, we understand, has reference to certain restrictive clauses relating to the employment of local labour, and the use of local materials.

* * * *

The Dublin Corporation have passed a resolution as follows:—"That in all contracts entered into by this Council a provision be included that trades union labour shall be employed in the carrying out of such contracts; that all workmen in the service must be members of the trades unions attached to their several employments; and that instructions to this effect be forwarded to the secretaries of the Standing Committees for the instruction of the officers working under such conditions." The mover said that every tradesman who was worth his salt was a member of his trades union. It had been shown that trades unions had saved their members from being thrown on the rates.

* * * *

Adverting to our recent observations on the subject of interesting work in old Dublin houses, we were struck by a remark made at the Annual Conference of the Philanthropic Reform Association, on September 28. The Lord Mayor condemned tenements as the curse of Dublin, and said that, instead of making an effort to improve such habitations, he would be in favour of wiping them off the face of the earth entirely. While we entirely agree with his Lordship from a sanitary and philanthropic point of view, it indicates the danger to which we previously alluded, namely, that many old houses are likely to pass away without any care being taken to have them examined, and any work of interest they may happen to contain either measured and drawn or photographed as a record for all time. Many of the old tenement houses have good plaster-modelled ceilings, at least worth a sketch or a photograph.

* * * *

Any reader possessing sketches, measured drawings, or photographs of eighteenth century Dublin work would greatly oblige by communicating with the Editor.

The result of the tendering for the new College of Science is expected to be known about 24th inst. A strong effort is being made to insist upon the use of native stone throughout.

* * * *

A proposal to take steps with the owners of property concerned to acquire space and to construct a bridge and roads connecting Berkeley Road and Phibsborough Road at the most convenient point between Blacquiere Bridge and the Broadstone was made, but deferred, at the last meeting of the Dublin Corporation.

* * * *

Speaking at the recent Conference of the Catholic Truth Society, Cardinal Logue declared that, from his observation of the labourers' cottages built, or being built, under the Act, many of them were quite inadequate in accommodation, and deserved to be called labourers' hovels, rather than labourers' cottages.

* * * *

The Commission on Forestry in Ireland has been sitting for some time past, and we hope to publish a special article on the subject in our next issue. Some interesting, if rather loose, evidence has been taken, but there is no mention of a broad and general scheme of re-afforesting on lines practicable and suited to the needs of the country.

* * * *

Our sprightly contemporary, the *Lepracaun*, thus tritely puts a Dublin "slum-owner's" soliloquy:—

SLUM-OWNER: "These ungrateful rascals, they're living in a mansion that was good enough for Lord Norbury, and that I bought for the price of the mantelpieces, and still they're not satisfied."

We are afraid that there is only too much truth in the sarcasm. The little reference to the mantelpieces is good.

* * * *

The recent deplorable accident in Grafton Street, whereby a young man, just admitted a solicitor, and with a promising career opening before him, lost his life with all the attendant circumstances of a most horrible death, really points to the need for the Corporation seriously facing the problem of dealing with the extraordinary congestion of traffic that prevails between the corner of College Green and Grafton Street and the corner of Nassau Street. This is really the most congested area in the whole city, so far as concerns traffic, and constitutes a danger to the life of car driver, motorist, cyclist, and pedestrian alike (particularly the latter). The Corporation own the houses from the College Green corner towards Grafton Street. Yet, although leases were lately renewed, or renewals promised, no move has been made to widen the street; while we understand the College authorities were willing to widen the street at the Grafton-Nassau junction long since under certain conditions, yet that offer has been rejected. It is high time the Corporation settled whatever differences there may be with the College and widened the place. We go the length of saying that howsoever unreasonable the demands of the College might be (and we believe them to be not unreasonable), the opportunity of widening the street should be availed of. It is a veritable death-trap. Surely those involved do not desire to have one or two more valuable lives lost before coming to terms?

THE RAILWAY COMMISSION AND IRISH LIMESTONE.

Interesting Evidence.

At a sitting of the Irish Railway Commission on Monday last, Mr. James Kiernan was examined, and, in reply to the Chairman, stated that he was a builder in Dublin. He owned a quarry at Stradbally, in the Queen's County; it was rented from Colonel Cosby; it was building stone. They had employed for three or four years an average of between ninety and one hundred men. At present there were about sixty men employed. The quarry was in a straight line between Athy on one line and Maryborough on the other, about eight miles from Athy, and about six from Maryborough. The stone was principally used in church building. It had been used extensively in Dublin. He had it conveyed to the railway station by cart. The nearest railway station was Maryborough, but the road was very bad and hilly, so they brought it to Athy. The cartage to Athy cost 5s. a ton.

Chairman—Has any suggestion ever been made to your knowledge to the Great Southern and Western Railway Co., or any other person, with reference to making a railway between those points? Not in my time—I have been there only four years—but I have heard that it was done some time ago. They endeavoured to get a railway:

Do you think that there is sufficient traffic to justify a railway being made to the quarries? Well, not to the quarries, because the quarries would depend altogether upon the necessity for cut stone, principally in Dublin. But at the same time, no matter to what part of Ireland you would be sending cut stone if there was a railway there it would be convenient; it would reduce this five shillings a ton enormously.

What is the rate from Athy to Dublin when you get the stone loaded in the truck? 6s. 8d. a ton for cut stone. Rough stone is cheaper—4s. I don't object to these rates. It would be an immense convenience to that district if the railway were extended. We pay 5s. and 6s. 8d., that is, it takes 11s. 8d. to bring this stone 45 miles. We are hit by foreign competition in that way. Take Portland, a foreign place. The stone comes by sea direct from there. I have brought cargoes of rough Portland stone here for 6s. 6d. a ton, and the ships in some cases were a month out on the sea dodging the bad weather, and it is done now at the same rate.

What is your output about? Our output is about 25 tons of worked stone per week. We have been doing 30 and 35. I built a church in Carlow, and it took plenty of that stone, and on account of the peculiar position of the quarries we had to send it by traction engine right across—not in the town of Carlow, but forty miles further on. If there was a railway there we could have sent it by the railway.

In reply to Lieut.-Colonel Hutcheson-Poe, the witness said his quarry industry was of recent growth; it was a very superior and useful stone for good work.

It is rather a difficult stone to work? Not as limestone. It is much easier to work than Ballinasloe stone, and very much easier than Kilkenny.

The witness, in reply to further questions, stated that the rates for stone on the canal were higher than the rates on the railway. The rates on the canal were about 9s. 9d. a ton for worked stone, and they had no crane to lift the stone.

Chairman—This is the first instance where the water carriage is above the railway carriage.

Witness—I don't think they wanted the stone at all. They were afraid the boatmen would drop the stone and knock the bottom out of the boat.

The witness, further examined, stated that there was no great quantity of limestone near Dublin. They had to go to Navan for good limestone and to Sheephouse, below Drogheda. And except the quarries at Skerries there was no limestone quarry nearer than those two places. Witness's limestone quarry was forty-five miles from Dublin. When a man gave an order for stone in the old quarries he would have to wait so long for these little men to supply him with the stone that everybody got out of humour—architect and workmen—the architect would not specify for limestone, and the result was that the limestone industry got into a very bad state, and the stonecutters were half idle all the year round. If there was a railway in the locality he had indicated a great many other things might be done. There were parts of the country where they wanted hard stone for road material. If they had a railway they could also send lime to Dublin—very much better lime than they got in Dublin. There was coarse, mountain limestone in the neighbourhood of Dublin. St. Dolough's, Feltrim, and Castleknock supplied the greater part of the coarse lime that was used around Dublin. If a man

brought it from St. Dolough's to Dublin it ought to cost for cartage about 5s. a ton. There was no way of bringing it except by carts.

In reply to Mr. Acworth, the witness stated that his present traffic at railway rates would pay about £100 a year. There was also a large malting place in the district, and they brought a large amount of stuff by the canal. He did not think that the receipts from the present traffic would pay the interest on the capital and the working expenses of a railway. They might go further—to the Castlecomer district. That was in the same line.

Lieut.-Colonel Hutcheson-Poe said that Colonel Cosby gave evidence that he wanted to bring the proposed new line up to Portarlington through Stradbally.

Mr. Sexton—Could you say about how much of the value of this stone in Dublin is represented by the freight and cartage? Yes. Sending rough stone to Dublin would mean that about one-third of the value in Dublin would be represented by freight and cartage. There is, first of all, the cartage from the quarry to Athy, then carriage from Athy to Kingsbridge, and then you have to lift it at Kingsbridge and take it to the builder's yard.

And of the whole cost of production and transit to you in the yard in Dublin, transit represents about one-third of that value? Yes.

The transit costs 11s. 8d. from the quarry to Kingsbridge? No. That is the rate for wrought stone. We are talking about rough stone.

Very well; take them separately. Take the rough first? The rough I have supplied in Dublin for 2s. 9d. per cubic foot, and something like from 10½d. to 11d. for carriage.

Now, take the wrought stone? That varies in price, but it is from about 6s. to 10s. the cubic foot.

How many feet per ton? Fourteen.

How much would be the proportion of transit? It is only a little more. You may say 1s.

What proportion of the whole value of the rough stone is the 13s.? It is an average of about one-sixth.

Now we have it that the cost of transit is about one-third of the whole value of the rough stone, and about one-sixth of the value of the finished stone? Yes.

What proportion of the value of Portland stone is the carriage to Dublin? It costs about 2s. per cubic foot of the Portland in big blocks, that is, not rubbish; and they are borne by sailing vessels at from 6s. 6d. to 7s. per ton, that is, about 6d. per cubic foot.

What proportion of the cost of the stone is the transit to Dublin? There is a little bit of cartage in Dublin—about 3d. per cubic foot.

But you have also that in the Irish stone? Yes; the comparison is against ourselves.

What is the difference? It is nearly twice as much.

What proportion of the cost of the stone is the transit to Dublin? From 6d. to 7d. per foot, as near as you can get it. Portland stone is lighter than ours.

Do the transit systems at this end put you at a great disadvantage with Portland stone? Yes. Here is a point. It turns up in connection with the new College of Science. They are to use Portland stone. They can bring it across and save 6d. per ton in carriage. I suppose the architect puts some value on the colour, and likes buff better.

Does limestone suit the climate here better? Yes.

And so this struggling industry is made more difficult to carry on by the condition of the transit? Yes.

The Chairman—You are aware that there is the cost of bringing that stone from the top of Portland to the quay? Yes; but I am giving the whole charge.

Mr. Sexton—With regard to the railways and canals, was there an arrangement between them providing that the canal should not interfere with the railway? I have not heard it.

Is limestone in large demand for buildings? Very considerable.

Throughout Ireland? Certainly.

Could the industry be greatly developed by favourable transit conditions? It could be developed greatly.

And the people are leaving the country for want of work? In many cases. I was in Derbyshire lately at a large quarry, and I was surprised to find a man from the town of Kilkenny in charge there. He had to leave the country twelve years ago. He acquired technical skill in Manchester, and now he is managing man there.

Are there not many countries where that is found—where Irishmen who have left our own land are found in positions of responsibility and trust? I believe so. His brother was working for me down in Stradbally.

The development of this limestone industry would be one of the ways in which emigration could be checked, the country helped, and the Government be given additional security for their land purchase annuities? The limestone workers are a good class of men.

And your industry sustains 100 men, earning good wages, both artisans and labourers? Yes.

And upon this industry hangs the lime-burning and macadam employment? Yes. No doubt there is part of the country where we could not use macadam.

The development of the lime-burning industry would lead to the spending of more money in the country? There is particularly fine lime down there. We used it greatly on the church there, costing £16,000.

You are aware that since 60 years ago they have been striving to get a line from the collieries at Castlecomer? I have heard that.

Some of the projects contemplated is running to Athy? Yes.

Do you think such a line as that would develop the great Leinster coalfield and might be remunerative? I am not acquainted with the colliery; but I know from the price we pay at Stradbally that it is very cheap coal.

It would be cheap coal with favourable transit conditions, but, of course, they have to cart it? Yes, it is about 13 miles from Castlecomer to Stradbally. We bring it to Stradbally, and it is got for about 1s. to 1s. 6d. per ton. That, of course, is a kind of rubbish. But, at the same time, if they wanted to burn lime it would cost 10s. or 11s.

Your evidence here is that owing to the conditions of transit it is of little use to the country and cannot check the market for foreign coal? Yes. But there is a lot of English and Scotch coal comes into Stradbally.

But it has really no market beyond the cartage area? That is so.

Even if a line were only from Stradbally to Athy, do you expect a line to live upon the limestone? No.

It is a populous district? There are a great number living in Stradbally, but not nearly so many as formerly.

I suppose it has suffered from migration, the same as the rest of Ireland, on account of such conditions as you have described? Yes.

But there is a large agricultural output? Yes.

And other industries? Yes.

And a considerable population? Yes.

And the district also requires supplies of goods? Yes.

What would be the length of the line? It is eight miles from Stradbally to Athy.

It would cost about £40,000? About £5,000 a mile, I suppose.

That would mean interest of £1,600 a year in addition to working expenses? Yes.

I suppose the people of Stradbally have considered the construction of such a line. It might not immediately, but do you think that in course of time it might pay? Well, the people about Stradbally are a very industrious race. They are industrious, and pretty sober and respectable. They seem to be people who would get along better than they do now.

It is a case in which you can hardly expect the district to give a guarantee? Yes.

If questions of transit were regarded as they are in Australia and Germany and other countries, if there was an Irish authority with resources at its disposal, which, regarding the system as a whole, could construct lines in such places as these, do you think that would be the most likely way to supply such wants as you describe? I suppose that is the only way. In my opinion the narrow gauge railway would be of little use. It is not the same as stuff in sacks. That is to say, you cannot transfer it with the same ease.

During the sitting of this Commission overwhelming evidence was given by various witnesses of the killing freights charged by the Irish railways—5s. 9d. a ton for conveying cement about twenty miles was a fair sample.

SCHEME OF COTTAGES FOR CRANARD.

On the 7th inst. Mr. Albert Cagney, Local Government Inspector, concluded a three days' inquiry at the Boardroom of the Granard Workhouse into a scheme promoted under the Labourers Acts by the Coole Rural District Council. The scheme was for the erection of 90 cottages with acre plots, and the acquisition of 29 half-acre allotments at an estimated expenditure of over £15,000.

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OBITUARY.

Death of Mr. Charles E. Martin, D.L.

It is with very great regret that we record the death of Mr. Charles E. Martin, D.L., which occurred at his residence, Montrose, Donnybrook, Co. Dublin. Mr. Martin was one of the most respected and popular members of the mercantile community in Dublin, and of which, indeed, he may be described as having been the *doyen*. He was the head of the old-established and highly-respected firm of T. and C. Martin, Ltd., North Wall, Dublin, the most extensive timber merchants and builders' providers in Ireland; and on the death of his brother, the late Sir Richard Martin, D.L., he also became head of the firm of Richard Martin and Co., timber merchants. As we have said, Mr. Martin occupied a foremost position in commercial circles in Ireland, but he was even more prominent in charitable movements of every kind. He was a generous benefactor to every Catholic charity in the city, but his generous help was by no means confined to those of his own faith, but was open-handed and broad-minded. A staunch Unionist, and liberal contributor to the party organisations, he was a man of very liberal views, as regards the opinions of those from whom he differed, while holding firmly to his own. He was the host of the late Right Hon. J. G. Goschen, M.P., when he visited Dublin on a political campaign, accompanied by the Duke of Devonshire (then Marquis of Hartington), during the height of the Gladstonian Home Rule controversy.

Mr. Martin was some time Governor of the Bank of Ireland, member of the Council of the Chamber of Commerce, a Governor of the Catholic Boys' Home, Royal Hibernian Military School, and the Richmond Hospital, as well as being identified with numerous other public and charitable institutions. He was a Deputy-Lieutenant and Justice of the Peace for the City of Dublin. He married Mary, daughter of the late Right Hon. James Monaghan, Lord Chief Justice of Ireland.

The funeral, which took place to Glasnevin Cemetery on Wednesday last, was one of the largest seen in Dublin for some time past, and its representative character indicated the general esteem in which the late Mr. Martin was held.

THE NELSON PILLAR ANNEXE.

At the last meeting of the Dublin Corporation,

A letter was received from the Town Clerk submitting a draft resolution on the subject of the construction of the ladies' waitingroom near the Nelson Pillar.

Alderman Irwin said he was astonished to see the structure being put up without any authority from the Corporation. The question was—Who was going to pay the costs of the legal proceedings? He protested against anything in the nature of a payment by the Council during the hearing of a case of this kind. There was no justification for what had been done or for what was proposed.

Mr. Sherlock said that a more inconvenient place could not have been chosen. The sense of the citizens was against it. The Corporation had not been consulted about the work, and, therefore, he moved that the consideration of the Town Clerk's letter be postponed for the purpose of having the present legal proceedings withdrawn on the basis of having the Corporation's right to build anything in the streets admitted, and of giving fair play all round.

Mr. Hutchinson seconded the motion, which was carried.

It is very gratifying to find that the Corporation have taken such a common-sense and proper view of this matter. The proposal to erect this horrible eyesore in the very middle of the chief thoroughfare of the capital can only be described as a monstrous one.

The plans for the Dungarvan auxiliary water supply, which have been prepared by Mr. F. E. Bergin, B.E., have been approved of, and the provisional order obtained. The work will shortly be open for tender. The estimated cost will be about £4,500.

The Bray Urban District Council will, on the 28th inst., consider tenders for—(a) erection of sixteen two-room cottages, being East Block, Purcell's Fields Scheme; (b) erection of nineteen two-room cottages, being South Block, Purcell's Fields Scheme; (c) taking down and removing sundry cottages, and additions and repairs to others; also for north and west boundary walls at Purcell's Fields; (d) making roads, footpaths, playground, boundary fence, and laying water mains, sewers, drainage, etc., in accordance with plans, specifications, and conditions prepared by Mr. C. H. N. Sutter.

CONCERNING A PLUMBER.

It was a simple plumbing fellow sitting in a snug,
An unsophisticated man imbibing from a mug;
He sat inside the ingle nook, no show or ostentation
He made, but sat and gulped his beer, a man of humble station.

'Twas plain to see he was opposed
To moving, till the pub. was closed;
'Twas plain that "mild and bitter" was his nightly occupation.

This gentle plumber man sat still, nor joined he in the babel
That loud and louder freely flowed around the beer-stained table;
He seemed by his appearance quite the mildest sort of fellow,
The flaring lamps' illumination made his features mellow.
Then as I watched I saw a tear
Well up, and fall into his beer,
A glistening tear of silver drop into that pool of yellow.

It stirred my very soul to see this strong man bowed with woe,
I wondered what sad story grieved the gentle fellow so;
I'm always sympathetic (pray, forgive the small digression);
I, therefore, up and spoke him thus, tears fell in quick succession:

"Forgive my curiosity,
I hope that you will pardon me,
But tell me, plumber, tell me, why you're seized by this oppression.

"Oh, is it that you're out of work, and that your children small
Are starving, or your wife is ill? Are brokers in your hall?
Perhaps your aged mother died of illness unexpected,
Perchance your plea for larger pay was ruthlessly rejected?
Pray, pray, control that falling tear,
And have another pint of beer,
And tell me why this sorrow on your features is reflected?"

The weeping fellow bowed his head and slowly made reply:
"No, guv'ner, you aint guessed the cause o' tear-drops in my eye.

I aint got any kids, sir, and s'welp me, my old 'ooman
Is fit ter knock art 'Ackensmith, or anything that's 'uman.
My aged muver died, yer know,
Some twenty-seven year ago;
I didn't ask for bigger screw, I'm working for a Jewman!"

"Then tell me, plumber, tell me," I exclaimed in my amaze,
"Perhaps some poet's touched you with his melancholy lays?"

"Come art of it," he (rather rudely) said, expectorating
Upon the floor. "Go on," said I, "pray do not keep me waiting."

He took another gulp of ale,
Then told his sad and dismal tale;
The tear-drops falling on the floor, his story punctuating.

"I started on a little job" (his voice was low and sad):
"To mend a bloomin' pipe which it was leakin' very bad.
Instead of takin' just six weeks, the ordinary way
To mend a pipe, I some'ow went and did it in a day!!"

I saw it all, I saw that he
Was far too sad for sympathy.
I spake no word, but took my hat and silent stole away.

T SQUARE.

IRISH TERRA-COTTA.

Visitors to the Exhibition will have noticed a very Gothic traceried window at the stand of the Kings-court Brick and Terra-Cotta Co. The window, to which we have previously referred, is pleasing in design, and cleanly moulded, is very accurately carried out in deep red terra-cotta, and altogether presents a very satisfactory appearance. The use of Irish terra-cotta should offer a solution of the difficulty that sometimes arises in this country in districts where there is no local stone available. The use of terra-cotta in building work is a perfectly legitimate and common-sense practice, and one sanctioned by time and experience, and where the terra-cotta is made in the country no exception can be taken to its use. The window at the Exhibition, above referred to, is now for sale at the very moderate price of £35, which includes about £10 worth of bricks. The company's Dublin offices are at 4½ Fleet Street, and enquiries should be addressed to the manager, Mr. W. Arthur Beckett.

THE DUBLIN TENEMENT OWNER.

A Picture from "The Lepracaun."

Having for a small figure, known as "a song," acquired a number of leaky, tumble-down tenements that no one else would ever dream of making habitable, the genius of the Slum-Owner at once asserts itself. It procures a professor of all the arts, who is generally known as a "handyman," and gives him minute instructions for the restoration of the ruin. To work he goes, and in a marvellously short space of time, like Aladdin's palace, a mansion has appeared where before was desolation.

Of course, there may be some slates wanting on the roof, but then there is the corresponding advantage of ventilation.

In the case of the windows the use of glass would be an absurdity, when newspapers and old hats can be utilised.

A thoughtful provision for the comfort of domestic pets is apparent in the numerous holes provided in the floors for the accommodation of that genial friend, the household rat.

The staircases are constructed with a view to the physical culture of the inmates, who, after a short time, develop an activity in ascending and descending them that is simply marvellous.

Being a philanthropist, the Slum-Owner, of course, doesn't worry about profit, but it is said that on more than one occasion the rent-collector has been heard to remark that he would rather be the proprietor of half-a-dozen tenement houses than all the mines in the Rand.

Once or twice in a century a dreamy-looking individual, with a book under his arm like a Bible-reader out of work or a spring poet in search of inspiration, comes along and inquires if everyone is happy, and should any of the inmates make an allusion to "sanitation," "white-washing," "repairs," "fever," or similar funniness, he asks "who is the landlord?" and being told he is the eminent philanthropist who represents the Kill-em-all Ward, he wearily remarks that his eyesight is growing worse each year, and then retires to make room for the doctor, coroner, and undertaker. And Public Health goes asleep again, and the Slum-Owner takes the chair at a large and influential meeting for "the better housing of the poor," and makes his audience weep with his heart-rending description of life in tenements.

ABSURD MISTAKES IN INSCRIPTIONS.

The London correspondent of the *Irish Times* notes the following absurd mistakes in inscriptions which have come under his notice:—

When the statue to the Duke of Cambridge was put up in Whitehall it bore the dates—"Born 1819, died 1903." As a matter of fact, the Duke died on March 17th, 1904. A statue was put up to him in the Guards' Chapel in Wellington Barracks, in which the Duke's first Christian name, "George," was omitted entirely. In the same inscription division was spelt "divison," and Commander should have appeared in the place of "Commanded." The equestrian statue to Sir Redvers Buller at Exeter had an inscription in which there were some curious mistakes. Salamanca was spelt "Salamanoa," Toulouse was spelt "Toulouise," and Vimiera "Vimieta."

There was much merriment at the opening of the Law Courts, arising from a ridiculous mistake. During the recess various alterations have been made in the Courts, amongst other new features being a sculptured bust of Lord St. Helier, the late President of the Probate, Divorce, and Admiralty Division. From the crowd gathered to witness the re-opening of the Courts the work came in for much criticism. The beautiful plinth of green and white marble is marred by an inadequate and mis-spelt inscription. This latter runs:—

The Right Honourable Francis Henry Baron St. Helier, G.G.B., Justice of the Probate and Admiralty Division, 1891-1892; President, 1892-1905.

It will be observed that instead of Grand Cross of the Bath the late Judge is credited with an honour which does not exist, while the word "Admiralty" is mis-spelt, and all reference to Divorce is omitted. The laughing crowd round the bust became so great as the day wore on that the authorities ultimately draped the pedestal to screen it from observation.

Absurd as the mistakes are, they are not so culpable as at first sight would appear, because every draftsman knows how much easier it is to make a mistake in spelling in setting out letters than in ordinary M.S. composition. This is true also to a lesser extent in setting type, and in type-writing. The explanation is obvious, and it is that the draftsman, the stonecutter, compositor, and, possibly, the typist, are all copying mechanically in a form that is not the everyday method of reducing ideas to writing.



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VOL. XLIX.	OCTOBER 19, 1907.	No. 21.
CONTENTS.		
Topical Touches	...	PAGE. 709
The Railway Commission and Irish Limestone	...	710
Death of Mr. Charles E. Martin, D.L.	...	713
The Dublin Tenement Owner	...	714
Absurd Mistakes in Inscriptions	...	714
LEADING ARTICLE:— The Use of Native Stone	...	716
COMMENTS:—		
The Care of Landmarks	...	718
St. Paul's Cathedral Foundations	...	721
Irish Quarries and Prices in 1855	...	722
Our Southern Letter	...	726
Tipperary County Council and Surveyor	...	726
Building News	...	729
The Cost of Labourers' Cottages	...	730
The late Father Tom Burke, O.P.	...	730
Engineering Items	...	733
The Engineering and Scientific Association of Ireland	...	734
The "Bogle" (Natural) System of Ventilation	...	734
Ten Years of Registration	...	737
Royal Institutes of the Architects of Ireland	...	737
Our Illustrations	...	737
Imports	...	737
Engineering News	...	738

THE USE OF NATIVE STONE.

At a political meeting, recently held in the Co. Longford, Mr. John Redmond, M.P., spoke of the proposal to import Portland stone for the new College of Science in Dublin. Mr. Redmond said that "They were building in Dublin at present a College of Science, and would it be believed, that the Government of the country was bringing stones at enormous cost from Portland, in England, to put a facing on that building, when, in the West and North of Ireland—aye, and in Stradbally—there was as good and better stone than the English. They—the Irish members—had protested against it, and, he hoped, would prevent it." Now, while we are delighted to see a political leader of the standing and influence of Mr. Redmond interesting himself in a matter of such importance to the country, it would be a great pity that the question should become a matter of party politics. Mr. Redmond, in his speech, kept the question distinct from the purely political questions he was dealing with, and so served a useful end without exposing himself to the charge of making party capital out of a purely economic question. Mr. Redmond was, of course, perfectly accurate when he said that there were as good stones available in Ireland as any Portland. They may lack the distinctive and characteristic charm of Portland stone and its adaptability to the uses of rich carving and ornament, but they have compensating advantages—great durability and resistance to the effects of weather—and, then, every true architect will use local stone if he can get it at all durable and suited to his purpose. English architects, working in their own country, almost invariably do so. It is right, both from an artistic and from an economic standpoint.

The suggestion that it is essential that Portland stone be used for the new college cannot be upheld. There are in Ireland plenty of building stones capable of the highest degree of ornamental treatment. In Dawson Street, Dublin, a distinguished Scottish architect has raised a splendid pile of buildings for the North British Assurance Company—a Scottish company—at

a cost of, we believe, nearly £80,000. This company and their architect, purposing to locate themselves permanently and not transiently in the country in which they make a share of their income, and desiring a permanent and practically imperishable habitation in this trying climate of ours, wisely used Irish limestone, without a single ounce of Portland or other imported stone. Contrast this with two banks not a couple of hundred yards distant, built of red Scottish stone for Irish companies, and the fine Roman Catholic Church in Thomas Street, with dressings of red Runcorn stone from Liverpool, and Christ Church Cathedral with French Caen-stone dressings. One of the banks had the stone decaying and being replaced before it left the contractor's hands, and at the church in Thomas Street thousands of pounds were spent in repairing and replacing the Runcorn stone; while at the present moment an appeal is being made to provide funds for replacing the decayed stone at Christ Church Cathedral, although it is not yet thirty years since the late George Roe spent a quarter of a million in restoring the fabric.

It is sometimes argued that Irish limestone is a cold and sombre stone; and so it is; but there are other stones in plenty in Ireland, granites of the finest character, and sandstones. As to what can be done in granite, properly handled by men who know it, there are plenty of examples. Two just occur to us—St. Paul's Roman Catholic Church, Arran Quay, Dublin, has some very fine carved capitals, all done in granite; while at the Kingsbridge terminus—one of the most graceful and ornate exteriors in Dublin—the excellence and beauty of the granite work is remarkable.

As we write, there lies before us a little work, entitled, "The Architectural Builders' Memoranda Book of Prices, containing Contractors' Prices for Railways and Roads, and Tables of Iron, Steel, Brass, Copper, Lead, etc., with Universal Price Lists of Various Trades." By David Smith, author of "The Practical Oblique Arch Builder." Printed by James Reed, Victoria Street, and published in Belfast so recently as 1855. In a supplement is given a list of no less than some 250 Irish quarries, comprising granites, limestones, and sandstones, and all these are still available. That they were in full working order so recently as 1855 is fairly evident from the fact that the author is enabled to give not alone the names and location of the quarries, but also, in most instances, the then current prices charged for stone. We think this list of so much interest that we reproduce it *in extenso*. Most of the quarries mentioned therein are now out of use, and in the list given, it will be noticed, the very respectable position occupied by sandstones in this list. With the exception of Scrabo, Dungannon, Mountcharles, and one or two others, there are in Ireland to-day no sandstone quarries, except a few used for purely local purposes.

In his notes this month, the marble, stone, and granite correspondent of the *Master Builders' Association Journal* deals at some length with the possibilities of exploiting for the British market the immense store of stone, marble, and granite with which Nature has endowed the Emerald Isle. The obstacles, he points out, to the proper organisation of the industry are partly physical and partly economical. The richest Irish marble and granite are on the west coast of the island, while the principal markets are on the east coast of England. Belgian ports are nearer London, and there also exists in connection with Ireland transport difficulties which do not hamper the Belgian quarryman. These, he says, and further difficulties created by the remote situation of the Irish quarries, might be overcome by the establishment on the east coast of depots to hold sufficiently large stocks from whence English and Continental manufacturers might be supplied.

The current London *Builders' Journal* also contained a very sympathetic article on Irish stone, and is made the subject of a leader in the *Freeman's Journal* of Monday last.

The little manual by David Smith, previously referred to, comprises some 130 pages, and is a singularly handy and

complete little work of reference which would be admirably useful still, if brought up to date, mainly in regard to prices. The question, however, of the use of Irish stone wherever practicable, is an important one of principle in the case of such a building as the College of Science. Supposing that the use of Irish stone involved extra cost and trouble, and that English stone were cheaper and in all respects as durable and suitable as Irish, then it would, perhaps, be asking too much to expect the ordinary building owner to make such a sacrifice, and the only argument that might prevail with him would be that of æsthetic instinct, dictating the use of the materials of the locality; not so, however, the Government of the country constructing a great public edifice out of the public funds contributed by the ratepayers of the country. From the Government we might even under such circumstances expect guidance and leading—a good example set to lesser building owners, and at the same time a practical object lesson of the resources of the country—even if it involved sacrificing a certain percentage of money—so long as the sacrifice was not too serious, for we are told very frequently that the dead and dried tenets of the Manchester school of economy, from which this country suffered much, are exploded fallacies, and gone from us for ever. But what are the real facts!—simply that Portland stone being easily and reliably procurable, saves a lot of trouble to those concerned with the building. Supplies of Irish stone are too frequently unreliable, disappointing, and vexatious. We well remember, some ten years ago, hearing it said by a very experienced authority on building matters in Belfast: “If you insist upon specifying granite for this job, not a respectable builder in Belfast will tender for your work.” This opinion was endorsed by several other people of experience, and accordingly granite was *not* specified; a local sandstone was used for the facing work with dressings brought all the way from Somersetshire, which was the cheapest and promptest offer received. We are glad to say that in the dozen years or so that have elapsed matters have in one sense improved, business-like methods are creeping in, and the Irish quarry owners are becoming more reliable in regard to their promises, while in respect of price, Castlewellan, Galway, and Newry can compete successfully with Aberdeen, and we know as a matter of fact of one case of a large order for granite which has been in a great part promptly executed. Freights in Ireland are, however, greatly against Irish quarries, if the stone has to be brought any distance by rail.

We have already observed that we deplore the idea of making a matter such as this one of party politics, if it were, it would certainly find no place in the columns of this journal, which has during the space of half-a-century, ever avoided any reference to matters tinged with either religious or party political feeling. As we have said, we welcome the help of political leaders to whatsoever party they belong, whenever and however they may use their great influence for the benefit of the industries of the country.

Some time since, the *Freeman's Journal* did us the honour of devoting a “leader” to our observations on the use of concrete, and in particular relation to a letter written to the Press by Sir Thomas Drew. The *Freeman* agreed with our deductions, and described our remarks as temperate and fair. Since then, the sympathetic article in the *London Builder's Journal* has this week drawn a further and able leader from the *Freeman*, in which, however, we are extensively quoted as controverting Sir Thomas Drew's statements, and Sir Thomas Drew is held up as an advocate of imported materials, and the further unhappy inference is drawn that such advocacy is due to his Unionist political opinions. Now, such a criticism is unfortunate, and in our opinion, is inexpedient as well as unfair. We entered upon no denunciation of Sir Thomas Drew's remarks; on the contrary, we said that his statement as to the mediæval use of imported materials was absolutely a fact, and could be verified by anyone who chose to do so, and we held that the selection of material must be decided upon the balance of local convenience and resources; this is perfectly consistent with Government or local authorities granting a reasonable preference to materials produced by the ratepayers of the country or the district, provided the preference is not so great as to burthen the general body of the public. The only criticism on Sir T. Drew's letter made by us, was that we regretted the terms in which he stated a perfectly

obvious truth; and nothing is more certain than that if the Dublin bricklayers or any other class of the community fail to give value for money, and to satisfy the public they will cease to exist as certain as that to-morrow's sun will rise—at least pity will never preserve them. Can we not recall many minor trades which have either outlived their usefulness or been crushed by competition, and have consequently ceased to exist; but so far as all human probabilities portend, that fate will never overtake the bricklayers' trade. The expression of such an opinion is a purely academic one, and in no way antagonistic to anyone's placing whatever work he possibly can in the way of bricklayers, and supporting by every means in his power, home industries. Sir T. Drew's illustration and comparison with mediæval examples of the use of English stone in Ireland, was absolutely at one with our own observation as to local convenience and resources, and holds just as good to-day as it did in the middle ages. The mediæval structures alluded to by Sir Thomas Drew were all or mainly English foundations. It was obviously cheaper and more convenient for them to bring from their native Somerset, or whatever it may have been, stone easily procured from quarries well known to them, rather than proceed into the interior of a more or less hostile country, and search out for and open up quarries. They settled the question, just as the public to-day do, and will continue to do, on the balance of convenience. The mediæval builders used English stone because they knew exactly where to get it, and could get it more quickly and cheaply than native stone. No person can doubt that had there been suitable local quarries open they would have availed themselves thereof. Only a couple of years ago, a respectable and one of the most experienced contractors in Dublin, asked permission to substitute Somerset stone for granite specified, because, said he, “I can get the former much more readily.” In 1855 and preceding years it is evident this state of things did not prevail, and that plenty of quarries were available, as is proved by the list we publish. In the advocacy of native materials now happily prevalent, it is too frequently lost sight of that to accomplish the object in view two parties have to be considered, namely, the producer as well as the consumer. It is utterly useless for the consumer to say “I will use Irish stone and none other,” and the vendor must be equally determined in saying “I will supply this man with what he wants as well and as cheaply, or nearly so, as the English or Scotchman,” and there is no reason why he should not do so, the help of a reasonable preference being given as the occasion permits. To ascribe political motives to such opinions as those expressed by Sir T. Drew, is a mistake, to say the least. Those who know Sir Thomas personally and professionally, know that as a sturdy advocate of the rights of Irish institutions, whether in the Institute of Architects or as President of the Hibernian Academy, he has ever strenuously pressed the claims of this country, even bearding the British Treasury, and always outspoken in showing up the disabilities of this country in matters of art, and its bad treatment at the hands of the Government. The important movement for the revival of Irish industries is one which calls for the help of all Irishmen, without respect to politics or religion.

COMMENTS.

The Care of Old Land Marks.

In the last issue of the *Irish Cyclist*, there appears an interesting article by “The O'Tatur,” entitled “Some Thoughts on Irish Milestones.” The author of the article, having a close acquaintance with the roads of Ireland from a cyclist's point of view, naturally took great interest in the milestones which mark, or are supposed to mark, the distances. In the course of certain enquiries he discovered some curious facts. The history of these Irish milestones is a subject of quite sufficient engineering interest to be referred to in a building and engineering journal, and incidentally throws a sidelight upon how many old landmarks of every description disappear, not by the decaying effects and natural disintegration, but by the wantonness of man; and from “The O'Tatur's” observations we

are sorry to see that even in the matter of such literal landmarks as milestones, the Irish builder has occasionally been very wanton, and has shown absolutely no respect for ancient landmarks. It is proved that in more than one case, for instance, where the milestone stood near to a house being rebuilt, that the milestone was ruthlessly torn down, and in one case, at least, incorporated in the foundations of the house! While in another case the stone was simply torn up, apparently without reason, and thrown into the back-yard of the house at which the building operations were going on. One would naturally suppose that a builder would have a natural respect for old things, and help to conserve them as long as he could. The result of this disregard for the milestones is that very many have entirely disappeared, while in other cases the course of the road has been materially altered, rendering the milestones misleading and inaccurate. We are told by "The O'Tatur" that such a thing as a perfect and unbroken set of milestones is almost unknown in Ireland; and it may safely be assumed that he who destroys a milestone will equally readily destroy any other form of ancient work, and this is how so many old churches have been mutilated, the Elizabethan Iconoclasts, Cromwell, and others often getting the credit for far more harm than they really were guilty of. Says "The O'Tatur":

When a milestone is placed in or near a town it almost invariably disappears. As an example, I would point to the fact that in the city of Dublin there is but one milestone (and it is of modern erection—the first milestone on the road to Howth and Malahide) that records a mile from Dublin. Some years ago the first milestone of the old Irish milestones on the Belfast road stood in Dorset Street, at the point where the North Circular Road intersects the road to the north. Someone built a publichouse at the corner, and the milestone went. Perhaps it was used as a foundation stone; at any rate, it has disappeared as completely as if it was. It would have been just as useful as a corner stone, and an ancient monument would have been preserved. But your modern builder is no respecter of milestones, or even tombstones—as witness the tombstone that forms part of the sea wall at Clontarf. We may consider ourselves lucky if the latter does not disappear in the Main Drainage operations.

To this we may add that the front garden paths of a terrace of houses at Glasnevin are paved with old tombstones—from whence derived we know not—probably the spoliation of some old graveyard "re-organised" for some modern improvement.

There is little doubt that at one time there was a complete series of milestones from Dublin to Belfast, but little more than half of them now stand. Where they were measured from at either end is difficult to exactly determine. The General Post Offices in Dublin and Belfast are now regarded as the starting points for mileage from both places; but it was not always so. At the period when the old milestones were erected the present Dublin Post Office was probably not built; the Belfast Office certainly was not. Dublin Castle is the starting point of many of the old milestones—there is one on the main road of the Phoenix Park that gives the distance to it—and it is very likely that the Belfast distances were reckoned from it, as Parliament Street, Capel Street, and Dorset Street form a practically straight run out of the city. The "Linen Hall" is frequently referred to in old road books as the starting point from Belfast, and here again a difficulty arises. The present City Hall is built on the site of the Linen Hall, and is about a quarter of a mile south of the present post office, but there is an older "Linen Hall—the Brown Linen Hall—in Donegall Street, of which only part of the outside wall now remains. It is an older building, and it is a coincidence that the distance from it to the junction of the road to Dublin from the present Post Office is exactly the same to a yard.

The conclusion arrived at by the writer of the article is that the modern builder has absolutely no respect for old things. There are a good many other facts of considerable interest brought out in the article referred to. For instance, the milestone errors, the comparison of the Irish and English measurement milestones, the diversion of roads, etc., etc. We learn that coaches between Dublin and Belfast only ceased running through the County Louth in 1850; that the earliest road map of the County Louth is Taylor and Skinner's, dated 1777; that the first milestone of the series stood at the junction of Dorset Street and the North Circular

Road. It indisputably proves that the distances were measured from Dublin Castle, as that point is exactly one Irish mile from the Castle, *via* Bolton Street, Capel Street, and Parliament Street, and about three-quarters of a mile from the G.P.O. But we must refer any of our readers desiring further information on this rather interesting subject to the *Irish Cyclist* of the 9th and 16th insts.

St. Paul's Cathedral Foundations.

Our readers will remember that some time ago we commented on the investigations made by Mr. George C. Churchward, at the instance of the "Daily Mail," and also upon the report of the committee of experts appointed to consider the question of the stability of the cathedral, and we at once joined issue with some of the conclusions of the committee. Mr. Churchward pointed out, in a letter to us, that pointing and tinkering up cracks would avail little in preserving the building. Mr. Churchward made, as our readers know, a series of borings. On 30th August he wrote us that in getting down the bore, under great pressure, on withdrawing it the core was, notwithstanding the pressure, absolutely loose, and fell out of the shell, which was 8 inches diameter by 2 feet 6 inches in depth. The whole bore, but for the intervening and jamming of flints in the cutter of the shell, would have been got down in two days, so loose was the substratum.

Mr. Churchward's theory was always that the sand and water percolated towards the river, and so undermining occurred, a condition induced by the constant dredging of the river bed, and he suggested building a deep retaining wall to prevent this sympathy between the river and the cathedral, which seems a practicable suggestion. Mr. Churchward further states that having himself sunk large cylindrical columns down to the London clay, he asserts positively that underpinning in the manner outlined by him, and which he declares to be the only means by which the fabric may be put in a satisfactory state again, is perfectly practicable.

We can only again reiterate our complete agreement with Mr. Churchward, that to attribute the settlement to distant workings carried on on the Shield system is the purest fallacy.

At this juncture there comes a further suggestion in an article by Mr. Stewart Inglis in the "Architects' Magazine." Apparently Mr. Inglis' idea of the cause of failure more or less coincides with Mr. Churchward's. Mr. Inglis suggests that the whole of the trouble which has led to so much discussion in regard to the cathedral, is due to the natural percolation of water through the sand under the cathedral, carrying with it the finer particles. Whether this be so it is, of course, difficult, without expert examination, to decide, but there will be general agreement that, as Mr. Inglis says, the settlement is due, at any rate, to some form of leakage from under the cathedral. His plan is to stop this leakage by placing St. Paul's, as he expresses it, "in a water-tight box," using the impervious London clay as the bottom of the box and constructing a water-tight concrete wall all round on the top of it.

Mr. Inglis' suggestion appears an excellent one if it were practicable, which we do not believe it to be. From the sketch section accompanying his article, he would appear to suggest sinking the walls of his water-tight, bottomless concrete "box" in St. Paul's churchyard, midway between the surrounding houses and the flank walls of the cathedral—a work fraught with the greatest engineering and traffic difficulties, and certainly calculated to endanger the cathedral during construction more than the workings of a hundred tunnels driven underground on the Shield system. The whole of the walls of Mr. Inglis' "box" would have to be done by "open cut," or certainly by "cut and cover," which we even doubt the possibility of. His cuttings should be planked and stayed, his concrete walls cased, and the cathedral, and probably the surrounding buildings, shored, not to speak of interference with tunnels, sewers, water mains, etc.

We should add that Mr. Inglis warmly protests against the absurd suggestion that the subsoil is in need of "a drink"—some wiseacres proposing to pump water *into* the subsoil!

IRISH QUARRIES AND PRICES IN 1855.

(From Smith's Universal Price List).

The prices of cut stone in numerous quarries throughout Ireland are arranged from authentic sources, from which a comparative price can be formed of others. The prices, generally, are those charged to the builder at the quarries, etc. Although circumstances may alter the prices higher or lower than these given, they are a fair average, and will serve as a guide to the intending contractor. These prices, having no reference to the wages of the localities named, may account for them in some instances being apparently low. Name of the locality or quarry is given where the stone is procured, the kind of stone, and prices in the localities or at the quarries. In some instances the localities are not in the counties under which they are ranged in the headings below:—

ANTRIM.		d.	d.
Tardree, pearl stone or porphyry, material and work, plain, per foot ...	...	8	to 10
Ballycastle Colliery, sandstone, rough, per cubic foot ...	...	5	„ 6
Labour, plain work, per foot super. ...	...	3	„ 3½
Cushendun, Breccia or pudding stone, labour, plain work, per foot super. ...	...	5	„ 5½
Rough stone, per cubic foot ...	...	0	„ 6
ARMAGH.			
Navan, limestone, material and work, plain, per foot super. ...	...	10	„ 12
Rough stone, per foot cube ...	...	7	„ 7½
Labour, plain work, per foot super. ...	...	7	„ 7½
Coalisland, sandstone, material and work, plain, per foot super. ...	...	6	„ 9
Killevey, granite, labour, plain work, per foot super. ...	...	6	„ 7
Rough stone, per cube foot ...	...	5	„ 6
CARLOW.			
Graigie, limestone, labour on ashlar, quoins, etc., per foot super. ...	...	7½	„ 8
Labour on plain mouldings, per foot super. ...	...	20	„ 21
Ditto, intricate work, ditto, ditto ...	...	31	„ 33
Rough stone, small, per foot cube ...	...	0	„ 4
Ditto, large, ditto ...	...	8	„ 10
Crane, Kildrana, Ballawilliamrow, granite. This stone for ashlar, one course with another, per foot run ...	...	0	„ 2
For landings, etc., 18 to 24-in. wide, 6-in. thick, per foot super. ...	...	0	„ 3½
In rough blocks, 4 ft. cube, per ft. cube ...	...	0	„ 5
Ditto 9 ft., ditto, ditto ...	...	0	„ 6
Ditto 16 ft., ditto, ditto ...	...	0	„ 8
Ditto 24 ft., ditto, ditto ...	...	0	„ 12
Labour, plain pecked, per foot super. ...	...	2½	„ 3
Ditto, ashlar, etc., plain ditto ...	...	0	„ 5
Ditto, plain mouldings, ditto ...	...	0	„ 18
Ditto, intricate mouldings, ditto ...	...	0	„ 24
CORK.			
Aherlagh, limestone, material and stone, plain, per ft. super. ...	...	6	„ 7
Window sills, per foot run ...	...	0	„ 12
Highly-tooled work, per foot, super. ...	...	12	„ 18
Delivered in Dunmanway, window sills, per foot run ...	...	26	„ 27
Ditto, string courses, ditto ...	...	0	„ 28
This is an easy-wrought limestone, and rises in large flat stones, and is sawed into sills, landings, etc.			
Delivered in Kinsale, plain work, wrought, per foot super. ...	...	0	„ 16
Ceskin slate. The rough costs, per foot super. ...	...	0	„ 2
Labour on plain work, per foot super. ...	...	7	„ 7½
Carrigmore, or Ballintemple, limestone, labour on plain work, per foot super. ...	...	10	„ 12
Delivered in Cork, common plain work, dressed, per foot super. ...	...	12	„ 14
Carrigacrumph, limestone, labour, on plain work, per foot super. ...	...	6	„ 7
Dunmanway, slate rock, labour, on plain work, per foot super. ...	...	12	„ 14
Fermoy, limestone, similar to Ballintemple or Carrigmore.			
Sallycross, Ramagher, Muleu, limestone. Labour, on plain work, per foot super. ...	...	24	„ 30
This is a very difficult stone to work.			
Mallow, various quarries, limestone, labour, on plain work, per foot super. ...	...	4	„ 8
Ditto, on string courses and stone, per foot run ...	...	0	„ 16
Large mouldings (labour on), per foot super. ...	...	0	„ 30
Rough stone, per foot cube ...	...	0	„ 3
Rahan Mount, Knockarowra, sandstone, labour, on plain work, per foot super. ...	...	4½	„ 5

Clough Lucas, sandstone, labour, on plain work, per foot super. ...	...	d.	d.
Rough blocks, per foot cube ...	...	0	to 5
0	„	2	
CAVAN.			
Latt, sandstone, similar to other hard sandstones.			
Slush Hill, sandstone, similar to other soft sandstones.			
CLARE.			
Rosslevin, limestone, labour, on plain work, punched, per foot super. ...	...	4	„ 6
Costs, stone and work, per foot super. ...	...	10	„ 12
Bushy Park, limestone, similar.			
Kilfenora, limestone, costs, plain work, per foot super. ...	...	0	„ 10
Rough, per foot cube ...	...	0	„ 4
Ballyhaigue, sandstone, similar to other sandstones.			
DUBLIN.			
Kilgobbin and neighbourhood, granite, plain chiselled steps, coping and window sills, etc., per foot super., delivered in Dublin ...	...	0	„ 8
Quarries around Dublin. Calph limestone, delivered at per ton ...	...	30	„ 36
Kingston, granite, neatly chiselled work, per foot super. ...	...	0	„ 12
Delivered in Kingston, average per ton ...	...	0	„ 18
Ballynocken (Co. Wicklow), granite, neatly chiselled ashlar, steps, window sills, and plain coping, delivered in Dublin, per foot super. ...	...	0	„ 18
DONEGAL.			
Drumkeelan, sandstone, costs per ton ...	...	48	„ 72
Plain work, wrought, costs per foot super. ...	...	6½	„ 9
Dog's Mountain, sandstone, plain work, wrought, costs per foot super. ...	...	0	„ 10
Ditto, punched, ditto ...	...	0	„ 5
Lough Esk, sandstone, ditto ...	...	0	„ 6½
Ballyshannon, limestone, labour, on plain work, punched, per foot super. ...	...	0	„ 4½
Costs chiselled, per foot super. ...	...	0	„ 6½
Douglas (Co. Tyrone), sandstone, delivered in Letterkenny, wrought, per foot super. ...	...	0	„ 12
DOWN.			
Rathfriland, granite, costs to plain work, per foot super. ...	...	7	„ 7½
Rough stone, per cube foot, according to scantling ...	...	10	„ 12
Annalong, granite, delivered in Downpatrick, steps more than 5 ft. long, per foot run ...	...	0	„ 14
Less than 5 ft. long ...	...	0	„ 12
Rough in the quarry, per foot cube ...	...	5	„ 7
Kilkeel, granite, costs to work plain, per foot super. ...	...	5	„ 6½
Stone and work, per foot super. ...	...	10	„ 14
Newry, Mullingar, and Crowhill, granite, labour, on plain work, per foot super. ...	...	9	„ 10
Scrabo, sandstone, plain work done, per foot super. ...	...	0	„ 3½
Per foot cube rough (in Belfast) ...	...	10	„ 12
FERMANAGH.			
Slush Hill, sandstone, labour, on plain work, per foot super. ...	...	3	„ 3½
Steps and landings, etc., plain work, chiselled, delivered in Enniskillen, per foot super. ...	...	0	„ 7
Punched, ditto, ditto ...	...	0	„ 6
Lisnaskea, sandstone, costs, wrought, per foot super. ...	...	0	„ 8
Labour, on plain work, ditto ...	...	4	„ 5
Carumore, sandstone, all purchased and prepared work, costs per foot super. ...	...	0	„ 7½
Tannyboy, sandstone, labour, plain work, per foot super. ...	...	3	„ 3½
Costs, wrought, per foot super. ...	...	6	„ 8
Rough, per foot cube ...	...	2	„ 3
GALWAY.			
Brackerhagh, limestone, labour, on plain work, per foot super. ...	...	8	„ 10
Rough, per foot cube ...	...	4	„ 6
Two-Mile-Ditch, limestone, labour, on plain work, per foot super. ...	...	3½	„ 4
Material and labour, punched and chiselled work, per foot super. ...	...	6	„ 9
Ditto, tooled, ditto ...	...	10	„ 14
Common rough blocks, per foot cube ...	...	0	„ 2
Newton, limestone, material and punched work, per foot super. ...	...	0	„ 6
Ditto, tooled and neatly-chiselled work, per foot super. ...	...	10	„ 14
Kilroe, limestone, labour, punched work, drafted, per super. foot ...	...	5	„ 8
Rough blocks, per foot cube ...	...	4	„ 6

			LONGFORD.					
Craughwell, limestone, material and labour, plain work, on an average, per foot super.	0	to 9	Crossdrum, limestone, delivered at Granard, wrought, per foot super.	...	...	6	to 18
Lissavigne and Cahirnagher, limestone, labour, chiselled or punched, per foot super.	0	,, 6	Ross, limestone, labour, on plain work, per foot super.	...	...	4	,, 5
Material and labour, plain, per foot super.	10	,, 12	Costs, rough, per foot cube	...	...	0	,, 10
Kennmare vicinity, limestone, material and labour, plain ditto	10	,, 12	Creeve, limestone, costs, wrought, per foot super.	...	...	12	,, 15
Rough, per foot cube	0	,, 3	MEATH.					
Listowel, limestone, labour, plain work, per foot super.	4	,, 5	Crossdrum, limestone, labour on chiselled work, per foot super.	...	...	0	,, 7
Labour and material, plain ditto	7	,, 7½	Labour on punched work, per foot super.	...	...	5	,, 6
Rathos, near Tralee, limestone, labour, plain work, per foot super.	3	,, 3½	Costs, wrought, per foot super.	...	...	10	,, 12
Ballymacelligot, limestone, labour, plain work, per foot super.	6	,, 7	Rough, per foot cube	...	...	0	,, 6
Rough blocks, per foot cube	0	,, 4	Ardbracken, limestone, labour, on plain work, per foot super.	...	...	0	,, 5
Material and labour, plain, per foot super.	0	,, 10	Hayestown, sandstone, costs, wrought, per foot super.	...	...	0	,, 8
Valentia slate, window sills, etc., each	0	,, 21	Carrickleek, sandstone, costs, wrought, per foot super.	...	...	6	,, 12
KILDARE.			Rough large blocks, per foot cube	...	...	0	,, 10
Newton, near Carlow, granite, labour, on plain work, per foot super.	5	,, 6	Ditto smaller, ditto	...	...	4	,, 5
Costs, delivered in Athy, per foot super.	0	,, 9	Ditto small, ditto	...	...	0	,, 2
Rough blocks, delivered in Athy, per foot cube	0	,, 8	MAYO.					
Ballynockan (Co. Wicklow), granite, costs, delivered at Naas, plain wrought, per foot super.	0	,, 12	Meelick, sandstone, costs, wrought, per foot super.	...	...	0	,, 30
KING'S COUNTY.			Rough large blocks, per foot cube	...	...	0	,, 16
Killane, limestone, costs, wrought, per foot super.	0	,, 10	Poolsharvogan, sandstone, labour on punched work, per foot super.	...	...	3½	,, 4
Scorough, limestone, costs, wrought, per foot super.	0	,, 11	Moyne, limestone, labour, on plain work, per foot super.	...	...	0	,, 10
Upper Eglish, limestone, costs, wrought, string courses, jambs, etc., per foot super.	7	,, 8	Ballinrobe, limestone, costs, wrought, per foot super.	...	...	6	,, 8
Plain work, punched or chiselled, per foot super.	0	,, 8	This is an easy wrought stone.					
Tullamore vicinity, limestone, labour, plain work, per foot super.	6	,, 7	Westport vicinity, limestone, costs, per foot cube, rough	...	...	0	,, 2½
Labour and material, rough punched work, per foot super.	7	,, 7½	Mooneen, sandstone, similar to other hard sandstones.					
Ditto, neatly dressed, ditto	9	,, 12	MONAGHAN.					
Ditto, chiselled or tooled, ditto	10	,, 18	Barley Hill, limestone, labour, on plain work, per foot super.	...	...	7	,, 8
KILKENNY.			Rough, per foot cube	...	...	0	,, 8
Templemartin, limestone, labour on quoins, per foot super.	7	,, 7½	QUEEN'S COUNTY.					
Labour on sills, jambs, and steps, etc., ditto	0	,, 7½	Thornbury, limestone, rough, costs, per foot cube	...	...	0	,, 4
Wrought, costs, stone, etc., ditto	0	,, 14	Costs, wrought, per foot super.	...	...	0	,, 16
Rough, per foot cube	0	,, 8	Commons, limestone, similar.					
Ballakilloboy, limestone, or marble, costs, wrought chiselled ashlar, per foot super.	14	,, 16	Aghnagar, limestone, similar.					
LEITRIM.			Ballynullen, limestone. A little easier wrought than the above.					
Mealwood, limestone, costs per foot super., plain wrought, punched	0	,, 10	Costs, wrought, per foot super.	...	...	0	,, 10
Costs ditto, chiselled	0	,, 11	Rough, per cube foot	...	...	0	,, 2
Carricksnavin, limestone, costs ditto	0	,, 12	ROSCOMMON.					
Costs ditto, pecked	0	,, 8	Aughies and Scardaun, limestone, labour, on plain work, per foot super.	...	...	3½	,, 4
Costs ditto, tooled	14	,, 18	Near Castlereagh, limestone, labour, according to the kind of plain work, per foot super.	...	...	8	,, 12
Glenfarn, sandstone, costs per foot super., wrought	0	,, 10	Cogan's Field, limestone, costs, punched, per foot super.	...	...	0	,, 8
Rough blocks, per foot cube	0	,, 3½	Ditto, chiselled, ditto	...	...	0	,, 9
Altomer, near Dungiven, sandstone, similar.			SLIGO.					
Gortahurk, sandstone, material and labour, per foot super., chiselled	5	,, 7½	Ballisdare, limestone, costs, wrought, per foot super.	...	...	9	,, 14
Rough blocks, per foot cube	0	,, 6	Killea (Co. Leitrim), sandstone, costs, delivered in Sligo, chiselled, per foot super.	...	...	0	,, 12
Carntogher, sandstone, similar.			TIPPERARY.					
LIMERICK.			Fir Quarry, limestone, labour, on plain work, per foot super.	...	...	6	,, 7
Knockany, limestone, costs, wrought, per foot super.	6	,, 8	Rough, per foot cube	...	...	0	,, 4
Rough, per foot cube	0	,, 3	Commons, limestone, costs, wrought, per foot super.	...	...	8	,, 10
Sills, 4 ft. 6 ins. long, each	0	,, 60	Rough, per foot cube	...	...	0	,, 3
Thomondgate and Mountkenet, limestone, costs, wrought, per foot super.	0	,, 16	Mount Anglesey, sandstone, costs, wrought plain, per foot super.	...	...	10	,, 12
Drumroe, limestone, costs, wrought, per foot super.	0	,, 10	Near Clonmel (Co. Waterford), sandstone, labour, plain work, per foot super.	...	...	0	,, 5
Rough, per foot cube	0	,, 3	Costs, wrought, per foot super.	...	...	0	,, 10
Churchtown, limestone, costs, wrought, per foot super.	0	,, 14	Co. Waterford (near Clonmel), limestone, costs, per foot super.	...	...	0	,, 10
Kylethane, limestone, plain wrought stone, etc., ditto	0	,, 8	Lisbunny, limestone, costs, chiselled, ditto	...	...	0	,, 12
Drafted and chiselled, ditto, ditto	0	,, 10	Drumbane, sandstone, costs, wrought, per foot super.	...	...	9	,, 12
Drafted and tooled, ditto, ditto	1	,, 14	Rough, per foot cube	...	...	5	,, 8
Rough blocks, per foot cube	0	,, 4	Carrick, sandstone, similar.					
LOUTH.			Holycross and Castlemeadow, limestone, costs, rough stone, per ton	...	...	0	,, 8
Sheephill, limestone, costs, wrought, per foot super.	12	,, 14	Prices for work, punched, per foot super.	...	...	6	,, 8
Circarly, limestone, similar.			Chiselled ditto	...	...	10	,, 12
Ardee, limestone, costs, wrought, per foot super.	8	,, 15	Tooled ditto	...	...	12	,, 13
Rough blocks, per foot cube	4	,, 5	Sparrowpecked ditto	...	...	13	,, 15

	d.	d.
Ballinillard, limestone, cost, wrought, per foot super. ...	12	to 15
Rough, per foot cube ...	0	" 2½

TYRONE.

Near Drumquin, sandstone, material and labour, plain work, per foot super. ...	6	" 8
Ditto, chiselled fine, per foot super. ...	8	" 12½
Rough, per foot cube ...	5	" 6
Corrick, sandstone, costs, delivered at Castle-derg, punched, per foot super. ...	0	" 7½
Ditto, in quarry, ditto ...	0	" 4
Ditto, chiselled, ditto ...	0	" 8
Ditto, in quarry, ditto ...	0	" 5
Drumquin, sandstone, labour, plain work, per foot super. ...	5	" 6
Mullinvara, sandstone, similar.		
Cookstown vicinity, sandstone, costs for working plain work, per foot super. ...	0	" 4
Ditto, moulded work, ditto ...	0	" 8
Large scantlings, rough, 6 to 10 ft., per foot cube ...	0	" 4
Small ditto, ditto ...	2	" 3
Carland and Edendork, at Dungannon, sandstone, costs, wrought plain, per foot super. ...	0	" 6½
Douglas Bridge, sandstone, costs, ditto ...	6	" 8
Carrick, sandstone, same as Corrick.		

WATERFORD.

Slieve Grain Mountain, sandstone, costs, wrought, per foot super. ...	10	" 12
Scorough, sandstone, ditto ...	8	" 10
Coolowen, sandstone, similar to Slieve Grain Mountain.		
Ballygin, sandstone, similar to ditto.		
White Church, limestone, costs, wrought, per foot super. ...	16	" 18
Ballymartin, limestone, similar.		
Oughbey, limestone, labour, on plain work, per foot super. ...	0	" 7
Costs, wrought, per foot super. ...	14	" 16
Rough, per foot cube ...	3	" 3½

WESTMEATH.

Ballinasloe, limestone, costs, wrought, per foot super. ...	10	" 12
Rough, per foot cube ...	4	" 6
Newton, limestone, similar.		
Seven Churches, limestone, costs, wrought, per foot super. ...	12	" 15

WEXFORD.

Sculloughgap and Newtownbarry, granite, labour, on plain work, per foot super. ...	0	" 7
Sold in rough blocks, per ton ...	0	" 48
Glasslaken, granite, costs, wrought, per foot super. ...	9	" 10
For work, plain, chiselled, ditto ...	4½	" 5
Rough small blocks, per foot cube ...	0	" 4
Rough large blocks, ditto ...	6	" 8
Bagnalstown (Co. Carlow), granite, cut stone, delivered at New Ross, window sills, steps, etc., per foot super. ...	6	" 7
Punched quoins, per foot super. ...	0	" 5½
Ballygub, sandstone, similar to soft sandstones.		

WICKLOW.

Williamstown, granite, costs, wrought, per foot super. ...	0	" 6
Highfield, granite, ditto, ditto ...	0	" 6
Macreddan, granite, ditto, ditto ...	7	" 9
Killanure, granite, ditto, ditto ...	0	" 6
Knoakmatomcoil, granite, ditto, ditto ...	9	" 10
For work, plain, chiselled, ditto ...	0	" 4½
Rough, small, per foot cube ...	0	" 4
Rough, large, per foot cube ...	6	" 8
Ballyknocken or Goldenhill, granite, similar.		

OUR SOUTHERN LETTER.

(FROM OUR CORRESPONDENT.)

Proposed Sanatorium.

The County of Cork Joint Hospital Board have now advanced with their scheme for the construction of a sanatorium beyond the competition stage.

There were two competitors who sent in designs, neither of which the Board intend to submit to the Local Government Board for their approval, but the conditions of competition state the design placed first must receive the sanction of the Local Government Board.

The Board, however, now do not wish to use either of the designs, and propose to divide the prize of £125 between the competitors. But if they do this without complying with the terms of their advertisement they are liable to be surcharged.

Their engineer has now prepared another alternative scheme, at an estimated cost of about £11,000, in comparison to about £21,000, the cost of one of the competitive schemes, and £26,000 the cost of the other.

The Board are certainly in an unenviable position, as it is about two months since they received the competitive designs.

They should certainly pay the £125 to somebody, and take the risk of the surcharge. The pity was that they submitted the question to competition under such unfavourable conditions.

General.

The Clonakilty Rural District Council have under consideration the question of providing a suitable water supply for the town of Courtmacsherry. It is estimated that a sufficient supply could be provided at an expenditure of about £500.

The Clonakilty Lighting Committee have decided that the scheme for lighting the town by gas should be carried out, and the matter is now to be referred to the Urban Council.

The Mitchelstown Council, owing to the difficulty they find in borrowing the sum of £2,320 for the proposed scheme of electric lighting, are for the present forced to abandon the project.

The Dungarvan Urban Council are proposing to carry out a scheme for the construction of a bridge and causeway to the Cunnigar, and the reclamation of the Western Bay, which would leave one thousand acres for the benefit of the community. The advantages of carrying out the work were admitted, and the cost was estimated at about £25,000. It was proposed that the Urban Council should guarantee the sum of £5,000, and that the balance should be obtained from the Treasury.

The Town Clerk was instructed to communicate with the Chief Secretary for Ireland, asking him to receive a deputation from the Council.



TIPPERARY COUNTY COUNCIL AND SURVEYOR.

At a meeting of the South Tipperary County Council, the question of Mr. Hackett's application for an increase of salary was again under consideration, the Local Government Board having asked them to take it up.

Mr. Cullinan, M.P., proposed:—

That the Council approve of the Finance Committee's recommendation not to increase the already increased salary of the County Surveyor, as this question was fully considered at the time that the increased salary was agreed to, and subsequently when the County Surveyor applied for a second increase, and that the Council consider the veiled threat of the Local Government Board to hold an inquiry in the matter as an indication of its bias, and that the Council expresses its determination to resist any unwarrantable interference with their right to manage their own affairs.

Mr. Cullinan commented strongly on Mr. Hackett's action in connection with the Glenaheiry affair. He had complained when seeking the increase first that he was so overworked that he could not attend to private business, and now his duties appeared to be so light that he was able to leave his work in County Tipperary and devote his time to inquiring into the notorious explosion affair at Glenaheiry, and mulct the ratepayers. (A Member—And blacken the character of the people.) They would sympathise with the people of County Waterford, and protest against Mr. Hackett's action. He had acted very foolishly in the matter by acting as kind of director of the shutters, windows, and pots in Dungarvan Courthouse, and making a laughing-stock of himself.

We have always held very strongly that no County Surveyor in Ireland should be allowed to undertake private practice. County Councils could easily enforce this rule.

With reference to the report of the assessor on the designs submitted for the Castletownbere Church competition, which we published in our last issue, we have received a letter from Mr. S. F. Hynes, F.R.I.B.A., of Cork, in which he takes exception to the assessor's remarks regarding the design submitted by him. It is not our custom to publish reports of assessors in competitions of this character, as such reports, where the competition is not a public one, are regarded as private and confidential reports for the employer's private information, and are usually communicated only to the competitors. We departed from our usual rule in this instance, at Mr. Hynes' request, but we cannot open our columns to a discussion on the assessor's judgment.



Belfast.—The Belfast Harbour Commissioners invite tenders to 26th October for general supplies for 1908, which include the following—iron and steel castings, carbons, cement, sewer pipes, firebricks, malleable iron, nuts, bolts, spikes, slates, timber, varnishes, white and red lead, etc., etc.

Bandon.—The District Council of the above Rural District have lodged with the Local Government Board for Ireland an application for an Order confirming improvement schemes (2) made by them under the Labourers (Ireland) Acts, 1883 to 1906, at an estimated cost of £52,290. A local inquiry will be held by Mr. J. J. Kelly, Local Government Inspector, on Friday, the 25th of October, 1907.

Bundoran.—The first sod of the new orphanage for girls at Bundoran, County Donegal, has been cut and blessed by the Most Rev. Dr. Owens, R.C. Bishop of Clogher. Mr. T. F. MacNamara, Dublin, is the architect, and Mr. James Wynne, Dundalk, the contractor.

Bray.—At the last meeting of the Urban Council, Mr. Plunkett moved the adoption of the report, which recited a letter from Mr. B. S. Mara (agent, Quinn estate), in which he stated that he could not recommend the owners to grant more than 60 feet frontage on Florence Road as a free site for the proposed new library, as the proposed reservation of next site in the event of its being used as a site for new Technical School, if at any time required, was too vague, and could not be taken into consideration. On receipt of reply that the Committee would be satisfied with the 60 feet frontage he would recommend the owners to grant this frontage. The committee recommended that the offer be accepted, with thanks, and that Mr. J. C. Wilmot, architect, be asked to submit a preliminary sketch or design of the proposed new Public Library, together with his observations and suggestions. He said that there was nothing so much required in Bray as a public library. Now that they had such a splendid offer, for he had no doubt but that Mr. Mara's recommendation would be accepted, they should convey to that gentleman and the other representatives of the Quinn estate their grateful thanks for their generosity to the town. They were deeply grateful to Mr. Carnegie for his splendid gift of £2,000, as they had already signified, and he was sure that he would be pleased to learn that such a magnificent site as the corner of Eglinton and Florence Roads afforded had been practically secured for the building. It was the heart of the town, and the best site that could be possibly secured, and it was really a free grant of a site, 60 feet by 150 feet, having two frontages.

Baldoye.—Sundry improvements are being carried out at Baldoye Racecourse, according to the designs of Mr. F. E. Cairnes, C.E. Messrs. J. and R. Thompson, Ltd., have secured the contract for building new horse stalls and walls, the cost being approximately £1,200.

Cork.—At a meeting of Cork County Agricultural Committee, the question of the establishment of a model village under the Labourers Act was under consideration. The District Council have already approved of a scheme by which they accepted 20 acres from Mr. Richard Baxter, St. Anne's Hill, on which to erect 20 cottages, with acre plots attached to each. The matter came before the Committee of Agriculture on an application that they should establish a demonstration plot at the site, and the Committee considered the idea an excellent one, inasmuch as it would afford education not alone to the occupiers of these plots, but to others in the district. They unanimously granted the application.

Carrickmacross.—New Classical Schools for Carrickmacross.—A meeting was held in Carrickmacross for the purpose of considering the question of building new schools to accommodate the courses of secondary education which at present are conducted by the Patrician Brothers. A working committee was formed, and £205 subscribed.

Cultra (Co. Down).—The tender of Messrs. H. and J. Martin, Ltd., has been accepted for the building of residence for F. L. Heyn, Esq., J.P. The architect is Mr. H.

Seaver, B.E. Quantities supplied by Messrs. W. H. Stephens and Son. The cost is slightly under £3,000.

Co. Fermanagh.—The County Council will, on the 1st prox., consider tenders for the following works, viz., the building of a bridge with approaches over the Many Burns River in the townland of Cloghoge, not to exceed £300; the repairing of a bridge on Maguire's contract south of Derrylin, about half-a-mile west of the chapel, not to exceed £200.

Dublin.—Messrs. Thompson are supplying and fixing the woodwork of the grand stands being erected at the Irish Rugby Football Ground, Lansdowne Road.

Dungarvan.—A special meeting of the Rural Council has been held for the purpose of considering the project laid before the Board at a previous meeting for the construction of a bridge and embankment to the Cunnigar and a roadway to the fishing stations at Ballinagoul and Helvick.

Drogheda.—The order for marble High Altar for the Augustinian Church, Drogheda, has been given to Earley and Co., Camden Street, Dublin, who are also executing the stained glass windows for the Presentation Convent Chapel, Drogheda, and the decoration of Capuchin Church, Church Street. Mr. Wm. Scott, A.R.I.B.A., is the architect.

Doagh (Co. Antrim).—Tenders are at present invited for the building of new National School.

Downpatrick.—At the monthly meeting, the Town Clerk read the minutes of the meetings held by the Joint Committee of Commissioners and Saul Trustees in regard to the objections raised by Mr. Carnegie to the proposed plans for the new free library for the town, towards which he had promised a contribution of £2,000 for building purposes. The Committee had met Mr. Blackwood, architect, who had amended the plans, and he was directed to have same forwarded to Mr. Carnegie for his approval.

Kilkenny.—A correspondent writes us as follows:—"As you have on several recent occasions commented strongly in your paper regarding the practice of employing the services of English architects and engineers in the carrying out of work in Ireland, which could be done quite as competently by the profession at home, I thought perhaps the following might interest you:—Designs for the new free Carnegie Library, at Kilkenny, were thrown open to public competition, the conditions being that Irish material, Irish labour, etc., etc., should be guaranteed. I understand several Irish architects competed and sent in designs. The ultimate result was that the competition was awarded to an English firm, Messrs. Jago and Tyars, said to have offices at 62 Dame Street, Dublin. I also understand their designs were sent in under an Irish *nom-de-plume*."

Londonderry.—A sub-committee of the Corporation have made an inspection of the grounds at the Long Tower Church in connection with the plans lodged with the Corporation for proposed extensions and improvements. The committee decided to approve of the plans, which include the taking in of a triangular space of ground which was before open to the public. The contract for the building work has been secured by Messrs. Ballantine, Ltd.

Listowel.—Listowel Parish Church.—Very considerable and substantial improvements are about being carried out in connection with the Listowel Catholic Church. The works to be carried out include two new aisles, chancel, sacristy, porches, etc., and are divided into two sections, viz.—Section one—the aisles, transepts, porches, new nave, arcades, opens from aisles to transepts, new transept windows, removal of galleries, the reconstruction of organ gallery and works incidental thereto. Section two—The side chapels, chapel, sacristy, and sacristy porch, opens from chapels to transepts and works incidental thereto. In addition to this, the floor room will be increased about one and a-half times its present capacity. The architects are Messrs. Ashlin and Coleman, 7 Dawson Street, Dublin.

Mullingar.—Messrs. T. and C. Martin have secured the contract for furnishing desks, furniture, and class-room fittings, and fittings for the new Science Hall in connection with the new College, Mullingar. Messrs. Pearse and Son, Great Brunswick Street, are carrying out the new high altar for the chapel, according to the designs and specifications of Mr. Lucius O'Callaghan, M.R.I.A.I.

New Ross.—The New Ross Urban Council have passed a resolution levying a rate of 1d. in the £ for the establishment of a Sanatorium for Wexford and the adjoining counties, providing the other public bodies within the contributory area did likewise.

Nenagh.—St. Mary's of the Rosary.—A mural tablet commemorating the consecration of above church has just been erected in the Epistle transept by Mr. M. Niall of the Marble Works, Killaloe. The tablet, which is of white marble, is a slab, resting on a sill of the same material, sunk deeply in the wall. The height is about 5 feet 2 inches and the width 3 feet 9 inches. In the arched top is en-

graved a Maltese cross, and in Gothic letters an inscription in Latin.

Tempo (Co. Fermanagh).—A new tower and belfry has just been completed at the Church of the Immaculate Conception, Tempo, for the Rev. P. S. O'Neill, P.P. The tower was designed and built under the supervision of Mr. J. V. Brennan, C.E., Belfast, and is of pointed Gothic, built with uncoursed rubble from the Doon quarries, Tempo, and dressed with Dungannon limestone, and, viewed from the Diamond, Tempo, looks decidedly imposing, and is certainly an acquisition.

Tallow.—Mr. H. Cathcart, a well-known steeplejack of Belfast, has examined the steeple of the R.C. Church as to the safety of the cross surmounting it, and has pronounced it unsteady, and advised that it should be taken down. Accordingly, having made arrangements with the parish priest, he made the ascent again, and succeeded in removing it down, a work of no little difficulty. The exact dimensions of the cross are 7 ft. long and 4 ft. across the arms. Its weight is about 6 cwt., and it will be replaced by another of the same dimensions but of less weight.

Trim.—Messrs. J. and R. Thompson, Ltd., Fairview, Dublin, have secured the contract for building the new Hennebique tower at the Trim Waterworks. The tower will be forty feet high, and the first of its kind in Ireland.

THE COST OF LABOURERS' COTTAGES.

Mr. J. G. MacSweeney, Local Government Inspector, opened an inquiry into a scheme proposed by the Trim District Council under the Labourers Acts. Mr. Sheridan, in his evidence, stated that the Council had received 461 representations, but did not act on 64 of them. It was proposed to erect 339 cottages, and to acquire and repair one cottage. One acre would be allotted to each cottage, and in 56 cases of existing cottages it was proposed to add an additional half-acre. The average cost of the acre plots had been £33, and of half-acre plots of £16 10s., of which the owner got £22 and £11, and the occupier £11 and £8 10s. Three hundred and fifty plots had already been built in the Union. The loans already borrowed amounted to £50,433 10s., and the annual repayment of principal and interest to £2,894 16s. 8d., and other expenses to £512 11s. 8d. The difference between the annual income and the outlay amounted to £1,717 9s. 6d., so that the loss was £4 18s. 2d. per cottage. The rent for acre plots was one shilling and a penny, and for half-acre plots eleven pence. The present loan applied for was £67,317 6s. 11d., and it would necessitate an increased poundage of 3-138d. in the £ to meet the loan. The cost of building the cottage would be about £143; land, £33; fencing, £5; other expenses, £12; total, £193. This meant a reduction of about £23 per cottage as compared with the last scheme; £7 for erecting cottages, and £16 on legal expenses. The rents were paid fairly well, and at the end of September the arrears were about £40.

Mr. Charles Douglas, C.E., gave evidence as to the selection of the sites.

The Inspector asked what was the estimate per cottage?

Witness—£143 1s. 9d., but I may say that the Local Government Board object to the slated roof that I put on the shed, and if I could put in concrete or galvanised iron I would reduce the estimate by 30s.

The Inspector—That is a very large cost for plain dwellings? Well, it is what the Local Government Board gave the prize for.

They gave a prize for the plan, not for the specification. I may say that the detailed quantities for the four plans were:—The first plan that got the £50 prize I made £195, and the next plan £170, and this is £143. If one contractor with a staff of men could take up 20 houses they could be built for £5 or £6 less.

Well, £5 or £6 a cottage all over the country would mean a great saving and more cottages? I think it is rather high, but our cottages are costing £150 to £160 at the present time.

You make out the average cost of each cottage to be £143; how much do you think that total could be reduced by? If we left out the shedding I could bring my houses down to £131; that is £10 or so off.

The enquiry concluded on Tuesday last.

The Wedgwood School of Art, at Burslem, erected at a cost of about £8,500, was opened on Thursday of last week by the Mayor of Burslem, Mr. S. Gibson. The constructional steelwork, fire-resisting floors, wood block floors, and asphalt flats throughout were supplied and fixed by Homan and Rodgers, of Manchester.

BUILDING GRANTS FOR TECHNICAL SCHOOLS.

A deputation representing the Standing Council of the Irish Technical Instruction Association waited on Mr. T. W. Russell, M.P., Vice-President of the Department of Agriculture and Technical Instruction, with reference to building grants for technical schools. The deputation consisted of members of the Standing Council of the Irish Technical Instruction Association, which represented various local bodies throughout the country, so that various interests in the country would be represented and laid before Mr. Russell by that deputation.

LABOURERS' COTTAGES ACT.

57,906 applications for cottages have been received under the new Labourers' Cottages Act, divided as follows:—Munster, 16,048; Leinster, 13,251; Ulster, 10,325; Connaught, 7,232. Were all these applications to hold good they would more than exhaust the four and a quarter millions provided by the Act, this sum being contemplated to cover the cost of erecting 36,000 cottages. Under the old Acts, for each £100 advanced an annuity of £4 17s. 2d. became payable for 50 years, but under the new Act loans are available from the Irish Land Commission for 68½ years at land purchase terms, viz., 3¼ per cent., and the reduced annuity is still further diminished by a contribution of 36 per cent. from the Labourers' Cottages Fund and Irish Development Grant, leaving only £2 1s. 7d. to be provided out of the rates for every £100 advanced. In the annual report of the Local Government Board for the year ending 31st March last, it is interesting to note that out of a total annual rental of £50,795 for existing labourers' cottages, only £4,201, or less than one month's rental of the whole, remained due at that date.

THE LATE FATHER TOM BURKE, O.P.

Consecration of a Memorial Altar.

On Sunday last, the Most Rev. Dr. O'Callaghan, Bishop of Cork, consecrated a Memorial Altar to the Very Rev. T. N. Burke, O.P., at St. Mary's Dominican Church, Tallaght. The altar and chapel are the gifts of the late Miss Victoire Martyn. They are a worthy tribute to the esteem of a life-long friend to the great Irish Dominican. The work was executed by Mr. Patrick Tomlin, Grantham Street, Dublin, from the designs of Messrs. Ashlin and Coleman. The roof and groining of the chapel are of Bath stone, supported by columns and cluster shafts of black Galway marble. The flooring and predella are in black and white marble. The altar is of white Sicilian, supported by a deeply-moulded arcade and columns of Irish black marble. The principal feature of the work is a very large and beautiful group, sculptured in full relief, six feet high and six feet wide, framed with Galway black fossil marble. The group consists of a Crucifixion and six figures, representing the Blessed Virgin and St. John, St. Dominick and St. Catherine, St. Thomas of Aquina and St. Rose. Looking at this beautiful piece of work, we are reminded of the paintings of the Italian masters, and seem to see realised in stone some of the ideas of Fra Angelico. The carving of the figures is most carefully finished, the drapery folds softly and gracefully, and the expression of the features and the various attitudes are full of devotion. It is, in fact, the work of a first-class artist, and bears upon it the marks of study, piety, and great talent. Such a work, executed in Ireland by Irish workmen, shows clearly what we may hope for when native skill is encouraged. Mr. Tomlin is well known for the excellent work done by him in various churches in Ireland. We congratulate him on this the latest and best of his work.

On the wall of the church outside the chapel there is a bust in a Gothic frame, by Mr. George Smith, of Dublin. Under the bust a brass tablet bears the simple inscription—"This chapel and bust were erected as a tribute to the memory of the Very Rev. T. N. Burke, O.P., by Miss Victoire Martyn. R.I.P."

Messrs. Marsden Tiles, Ltd., of Burslem, Staffs., have recently brought out several new sheets, which make a very excellent addition to their catalogue. We would call the attention of architects to the very delightful series of glazed briquette fireplaces, which are produced in various colours, introducing pleasing effects. They also show a very pleasing sheet of panels, designed after the styles of the Bros. Adams, Queen Anne, and Sheraton.

ENGINEERING SECTION.

ITEMS.

The Scientific and Engineering Association have just issued the programme of meetings for the forthcoming session. As usual, the papers promise to be of great interest to engineers, and the visits to buildings which have been arranged in conjunction with them will undoubtedly prove educationally beneficial. A much-needed class for surveying and levelling has been formed under the guidance of well-known members of the Association, and, as the fees are only nominal, an excellent opportunity arises for architects and surveyors to become acquainted with this essential part of their training. It is encouraging to find, year after year, that both the junior Engineering and Architectural Societies are more than holding their own, for it has hitherto been rather a reproach to the Irish capital that societies were formed with more enthusiasm than they were subsequently supported.

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The effect of treating road surfaces with tar and similar materials, for the prevention of dust, may be noticed in some of the more progressive townships around Dublin. Undoubtedly a decided improvement is observable, but only in the cases where the roads have been carefully constructed and thoroughly repaired before the application of the tar. Otherwise the condition of affairs after rain is worse than before; the treatment having rendered the road surface impervious to moisture, water collects in the hollows, and eventually becomes a dark, greasy mixture, with anything but a pleasant odour, unsightly to the eye, and destructive to boots and clothes. It is, therefore, essential that municipal engineers, before proceeding to lay the dust, should relay the roads; then it may be safely assumed that a very effective treatment of road surface has been evolved to meet the requirements of motor traffic.

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Those who so blithely christened the new British airship, "Nulli Secundus," must by now be wishing they had chosen a less ostentatious name. Before the wind the aerostat behaved admirably, and "stop press" editions of the London evening papers were filled with detailed descriptions of her voyage, one even being tempted into a statement that a journey of thirty miles was completed in twenty-four minutes. The return trip was, however, naturally more difficult, and although a contemporary attributed the enforced stoppage at the Crystal Palace to the fact that the crew had been invited, by megaphone, to lunch with the manager, later news elicited the information that the airship was mechanically unable to return to her moorings. The subsequent gale did not improve matters, and at present Great Britain is minus the first vessel of her aerial navy. It is probable that a closer attention to detail, and a more becoming modesty in nomenclature, will result in an aeronautic equivalent to the *Lusitania*; meanwhile, the broken-pinioned aerostat at the Crystal Palace may be rechristened the *ballon d'essai*.

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As the threatened railway strike is the present all-absorbing topic, it is, perhaps, pardonable to again refer to the subject in these columns, more particularly as the engineering world is vitally interested in the question: "To be or not to be." The Conference of the A.S.R.S., recently held, has breathed fire and vengeance; but, at the back of all the threats, there is a certain timidity which is extremely apparent. A resolution was adopted reiterating the demand for the recognition of the Society's officials and approving of the conduct of the Executive, which is Mr. Bell, the President, and Mr. Bell, the Organising Secretary; and, while this action may be regarded as satisfactory by the two gentlemen immediately concerned, it is not convincing either to the railway directors or even to the general public. One aspect of the present disastrous condition of affairs should not be overlooked, as it is really the main point at issue. The A.S.R.S. only represents about one-fifth of the total number of railway employes, the remainder of which are members of other unions, many of which are not in favour of the threatened strike. Mr. Bell, cooling as gently as any sucking dove, at present only desires recognition of his own society, which, if granted by the directors, would immediately give that society pre-eminence amongst the others, and attract them to Mr. Bell's own standard. The railway companies have naturally estimated this astute

move at its proper value, and they may be relied on not to assist in a result which the A.S.R.S. has, so far, failed to achieve by its own initiative. Indeed, the directors have signified their willingness to recognise the executive of an organisation which represents the whole of their employes, and state that they are only keeping in line with four-fifths of their own workmen in objecting to recognise the credentials of Mr. Bell.

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There are, therefore, powerful influences against the strike; the A.S.R.S. is but a minority, although a substantial minority; the other unions will not join in a strike, and have, in some cases, signified their intention of standing by the directors; the fear of loss of pension, and finally the lack of funds to sustain the strikers during the long and bitter fight which would inevitably ensue. The results of even a futile effort to win the longed-for recognition can be seen in the depression of the markets which rapidly followed the early stages of the present existing tension, and, with prices of coal and metal far above normal, the outlook for the engineering trade is anything but reassuring. It would even be a relief if a period were put to the loquacity of the organisers, and the struggle were entered upon in grim earnest. The strength and disposition of the opposing forces could then be better judged, and the existing uncertainty would be superseded by facts. However, we are of opinion that those interested in British and Irish railways need feel no alarm, for if the directors offer a golden bridge of the flimsiest construction, there is no doubt that Mr. Bell and his followers will have little hesitation in hastening to cross it.

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The annual meeting of the Associated Portland Cement Manufacturers gave publicity to a matter which they doubtless hope will be rapidly adjusted. The English Office of Works, the War Department, and the Admiralty, have all used reinforced concrete in their works, but the English Local Government Board have hitherto refused to sanction loans for structures of that material for a period of more than fifteen years, while allowing a period of thirty years for stone or brick erections. Two distinct policies are here apparently brought into direct antagonism, and it has been assumed that the Local Government Board will eventually give way. But the conditions are by no means similar—a point that was rather overlooked in the Association's proceedings. The essentials of ferro-concrete construction are that the materials should be the best procurable, to a standard specification, and that the workmanship should be of the highest excellence. In a contract carried out under Government surveillance, wild criticisms notwithstanding, both these conditions are, as far as possible, observed. In a loan case the contract is executed locally, and the inspections by officials can only be made at infrequent intervals, and the opportunities of scamping, which will thus occur, are obvious to a practical man. As scamping in reinforced concrete work is fatal to the strength and longevity of the structure, it will be seen that the Local Government Board are not unwise in reducing the period for their loans, both as a safeguard to themselves, and more particularly as a protection to the ratepayer. The A.P.C.M. will have to advance more cogent arguments *pour faire vivre*.

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The most important matter dealt with in the annual report of the Local Government Board for Ireland is that of the alarming number of deaths, which annually occur in this country, from tubercular disease. No less than twelve thousand deaths occurred in 1905 from tuberculosis in its various forms, the rate being 2.7 per 1,000 of the population. Of this proportion 2.1 deaths per 1,000 are directly attributable to pulmonary tuberculosis. No person interested in the future of Ireland can ponder these figures and remain unmoved, and it is a sign of the times that many of our public bodies are realising the necessity of fighting the scourge, and are erecting sanatoria for the reception of patients. Until tuberculosis is recognised as a notifiable disease, no real headway can be made in its eradication from our midst, and for this reason we call the attention of all those interested in municipal affairs to visit the section of the Irish International Exhibition which has been allotted to the discussion of subjects bearing on the causes, spread, and prevention of consumption. There the visitor will see

displayed diagrams, prepared by the Registrar-General, which instantly convey to the mind the ravages caused by the dread disease in this island, and its recent rapid and alarming increase. Professor Osler, at the opening Conference, aptly described the causes by which the human body was rendered receptive of the germs, as bad food, bad air and habitation, and bad drink. By dint of hard work in the laboratory, hospital and the home, the medical profession has gained a complete victory over malaria, and has almost rooted out small-pox from our midst. By careful study of hygiene theory, by experiment and by close supervision, sanitary engineers have gradually reduced the death-rate from typhoid, and are still devoting themselves to a further diminution. The fight against tuberculosis need, therefore, be considered no losing battle; a combination of the medical, engineering, and architectural professions, assisted in some degree by the Government, and with enthusiasm and determination by the public, will, within a decade, stay the catastrophe which, in the spread of tubercular disease and insanity, seems likely to overwhelm the country if past apathy be not replaced by energy and thought. And so as a preliminary the exhibition, now on view in Dublin, and which will later travel the provinces, should be visited and studied by all.

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A somewhat reactionary policy has recently been adopted in Sheffield, and it would be interesting to learn the true reasons which actuated it. The city has at present two large refuse destructors, which, however, are incapable of dealing with the whole of the refuse, and for months past various methods of meeting the difficulty have been under consideration. Eventually what seems an obvious course was decided upon, and a site for a new destructor was purchased. Subsequently, however, a large tract of land was obtained some miles outside the city, which is to be converted into a "tip." The tip system of refuse disposal—or rather refuse removal—has long been looked upon as antiquated and insanitary, and it appears strange that, after a lengthened trial of refuse destructors, and in a city of the size and importance of Sheffield, it is not deemed desirable to increase their number. This change of policy betokens some local difficulty, for throughout the county the consensus of opinion is that destructors are rapid, sanitary, and economical.

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In commenting upon the Engineering and Machinery Exhibition, held at Olympia, a contemporary calls attention to the "motor manner" which is being acquired by the exhibitors. When a mere layman visits a motor car exhibition, he naturally expects to be treated as a cipher, and that the gentlemen who have charge of the stalls will put on an air of lofty condescension and pitying patronage, if asked questions about the articles on show. Exhibitors of a commoner kind of machinery are rapidly acquiring a similar manner (or lack of manner), one characteristic of which appears to be that it is considered the worst possible form, on the part of a stall attendant, to describe or explain to a visitor any detail of an exhibit, unless the said attendant has the stump of a cigar between his teeth, or the "butt" of a cigarette hanging to his nether lip. To remove this, or even permit it to be out while talking to a visitor, is the height of impropriety, and the manner is affected alike by the top-hatted-frock-coated representative and by the overalled mechanic.

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If the *Electrical Review* has discovered this failing at the London Exhibition, an earlier discovery was made at our International Exhibition nearer home. The efforts of the writer to prepare the articles which were published in these columns at the opening revealed a surprising discourtesy, or lack of business aptitude, on the part of the stall attendants, with a few marked exceptions. The first assumption of these gentlemen was invariably that one was an advertisement canvasser, and, as such, was quite beneath contempt. Having proved satisfactorily that information, not money, was required, the more energetic attendants would produce a sheaf of pamphlets, hand them over for perusal at leisure, or with an air of infinite boredom recite a list of the firm's goods, punctuated by pulls of a cigarette and more or less frequent expectoration.

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It was seldom that the less obvious details of plant and machinery were explained, such particulars as would naturally be required for a technical journal. Other exhibitions are about to be held, and it would be wise for the engineering firms concerned to warn their representatives against the growth of the discourteous and unbusiness-like habits which many stall attendants consider it so essential to display.

THE ENGINEERING AND SCIENTIFIC ASSOCIATION OF IRELAND.

PROGRAMME OF AUTUMN SESSION, 1907.

The meetings will be held in the Physics Theatre, Royal College of Science, St. Stephen's Green, on the following evenings, commencing at 8 o'clock. p.m., precisely, unless otherwise stated:—

October 24—(Thursday). Visit to the biscuit factory of Messrs. W. and R. Jacob and Co., Ltd. Mr. R. E. Young (Member), Chief Engineer. Members, who may be accompanied by ladies, to meet at Bishop Street, at 4 p.m.

November 11—(Monday). Election of Candidates. Nomination of Officers and Council, 1908. Paper on "Internal Combustion Engines," by Mr. James Lyon, M.A., Professor of Engineering, Royal College of Science.

November 23—(Saturday). Visit to Foxrock Purification Works. Mr. P. H. McCarthy, M.A., B.E., M.I.C.E.I. (Member). Engineer Members to meet at Harcourt Street Terminus, 2.40 p.m.

December 9—(Monday). Election of Candidates. Election of Officers and Council, 1908. Paper on "Non-Conducting Coverings," by Mr. James A. Duff (Associate Member).

December 18—(Wednesday). Annual Smoking Concert, 8 o'clock p.m., Gresham Hotel.

The Hon. Secretary of the Association is Mr. John G. Purser, Treborth, Howth.



THE "BOYLE" (NATURAL) SYSTEM OF VENTILATION.

We have before us an interesting pamphlet dealing with the above famous system of ventilating buildings. The "Boyle" system is a natural one, and scientifically utilises the unceasing movement existing in the atmosphere in conjunction with the difference in temperature between the internal and external atmosphere. The first-named of these factors is a natural force supplying an unfailing motive power, which is added to by taking advantage of the difference in temperature which always exists between the air inside and that outside an inhabited dwelling. It will be at once apparent that with this power always at hand it would be folly to incur the expense involved in installing and maintaining mechanical ventilation, and it is precisely this fact that has weighed with Messrs. Boyle in making them adhere solely to natural ventilation. They—the Boyles (father and son)—have been practically the founders of the profession of ventilation engineering, and they have found that mechanical or any other form of artificial ventilation is not more effective than a "natural" system *properly applied*. That the "Boyle" system is effective is a fact of world-wide recognition.

As applied to buildings, the "Boyle" system consists of a patent self-acting "air-pump" ventilator, which removes the pressure of the external air from the top of the outlet shaft, thereby creating a continuous and powerful exhaust at the upper part of the building. This it does under every condition of the weather, even when there is no perceptible movement of the air. With the air-pump is combined Boyle's patent improved air inlets, fixed at the lower levels, admitting air in an upward direction, purified and warmed or cooled as required, ensuring a constant change of air and perfect diffusion of the fresh air supply in strict accordance with the natural laws governing ventilation. Details are given in the pamphlet under notice, together with opinions on the "Boyle" system by engineers, scientific men, and other experts. The booklet, which will well repay perusal, can be obtained from Messrs. Robert Boyle and Son, 64 Holborn Viaduct, London, E.C.



ENGINEERING MACHINERY EXHIBITION, OLYMPIA, LONDON.

The above exhibition is at present being held at Olympia, and includes amongst its most conspicuous exhibits a spacious stand occupied by Messrs. Kirchner and Co., Tabernacle Street, London, E.C., the well-known manufacturers of wood-working machinery. They are showing a large and varied selection of their latest machines, many of which are particularly suitable for pattern-making shops, railway works, and engineers' workshops generally. Amongst the machines to be seen are the following:—The latest improved ideal type of bandsaw, designed upon unique lines, one of its principal features being special phosphor bronze bearings with ring lubrication; a massive combined surface planing, thicknessing, and moulding machine; a new hand-fed planing machine and general woodworker; a variety of moulding and recessing machine; panel planing machines; boring and slot mortising machines; rising and falling table saw-benches, etc. Messrs. Kirchner's representative is in constant attendance at their stand, and will be glad to furnish any information desired.

TEN YEARS OF REGISTRATION.

A communication received by the Chicago Architects' Business Association requested answers to a list of questions concerning the practical working of the Illinois licence law during its ten years of operation. The answers embrace the information and observation of the Secretary of the Illinois Board of Examiners of Architects, Mr. Peter B. Wight, and therefore are authoritative. The questions and answers are as follows:—

Question 1.—Did your Association favour registration or licensing of architects before the law was passed in your State?

Answer 1.—Our Association was originally organised for the express purpose of securing the passage of an architects' licence law.

Question 2.—Do you favour such legislation in principle now?

Answer 2.—At the April meeting of the Association this question was submitted to a vote of the entire meeting, and was unanimously carried in endorsement of our present licence law. It was emphatically emphasised, however, in the discussion that while the law was of incidental benefit to the architect, its real value and the only logical ground for its support was its benefit to the general public, by securing at least a moderately competent chief officer in charge of the design, and having supervision over the construction of buildings.

Question 3.—In the operation of the law in your State as you have seen it, how has the law benefited the public?

Answer 3.—It has placed at the disposal of anyone, in case they wish to engage in building, competent expert advisers who are made responsible to the State for the character of service rendered. It also enables discipline and punishment in the case of dishonest, reckless, or incompetent practice, and gives the public some redress in such case. Men who are naturally dishonest or reckless are restrained in their natural tendency through fear that their licence to practice may be revoked by the State Board. Men who know themselves to be incompetent in certain particulars through the same fear are compelled to procure competent advice on questions which they feel uncertain about, thus securing to their clients competent service. The importance to the public of having buildings erected after plans prepared by architects examined and licensed under the laws of the State of Illinois has been so impressed on the City Council of the City of Chicago that they have laid down a requirement in the municipal code requiring that all plans having area in excess of 1,200 square feet must be prepared by a licensed architect, signed and sealed by him, as a pre-requisite to secure a permit for the erection of a building within the corporate limits of the city. A movement, which is not yet accomplished, is on foot to make it obligatory to require all buildings erected within the City of Chicago to be constructed under the authority or general supervision of an examined and licensed architect. This movement had its original inception as a result of public demand for a greater safeguarding of life and property in the great factories and warehouses which have been frequently erected without the supervision of an architect.

Through the recklessness and desire to economise on the part of interested builders, buildings have frequently been constructed faultily, resulting in serious accidents. The chief opposition to this movement has come from speculative builders, who do not care to have their work submitted to the inspection of competent experts, for reasons which are evident.

Question 4.—How has the law benefited the profession?

Answer 4.—The law has benefited the profession of architecture by securing public recognition of same and by purging it from the reckless and incompetent, elevating its tone and character. The law is a police regulation, and must be based on public benefit, not class benefit. The only ground on which the law can be supported is on the ground of protection to the general public, in the security to the lives and health of the workmen engaged in the erection and the future occupants of the building. Fortunately, however, we have found that this public benefit has actually been a professional benefit.

Question 5.—If you favour a registration law in principle, what features of your law, if any, would you wish to see changed?

Answer 5.—The present law in this State has been revised and amended, until it is now very satisfactory. Any new law in other States should embody the Illinois law with all of its amendments.—From the *Architects' Magazine*.

The Marconi Station at Clifden has now been finished, and is said to be the most complete of its kind in the world.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

The ordinary monthly meeting of the Council was held at 20 Lincoln Place, Dublin, on the 7th inst. Mr. W. M. Mitchell occupied the chair, and there were also present:—Messrs. R. C. Orpen, F. G. Hicks, A. E. Murray, G. C. Ashlin, H. Allberry, G. P. Sheridan, and C. A. Owen, acting hon. secretary.

The minutes of the ordinary meeting on the 3rd June, and of special meetings on the 14th and 21st June, 23rd July, 8th August, and 19th September were read and signed.

A resolution was passed expressing the sympathy of the Council with the hon. secretary in respect of a family bereavement.

A very heavy correspondence was then dealt with, including a letter from J. F. McMullen, of Cork, explaining his attitude in the matter of the County Cork Joint Hospital Board's competition for a sanatorium for consumptives. The hon. secretary was instructed to convey to Mr. McMullen the Council's appreciation of the loyal manner in which he has supported the Institute.

Two applications for membership having been considered, the Council adjourned until the 11th inst.

The adjourned meeting was held at 20 Lincoln Place on Friday, the 11th inst. Mr. W. M. Mitchell was in the chair, and there were also present:—Messrs. F. Batchelor, C. A. Owen, H. Allberry, R. C. Orpen, G. P. Sheridan, J. Holloway, and J. H. Webb, hon. secretary.

Arrangements were made for holding the forthcoming election of a president for the ensuing three years, as Mr. W. M. Mitchell's period of office expires next month.

The question of the necessary revision of bye-laws in connection with the new class of students was referred to the Professional Practice Committee for a report.

It was decided to hold the October general meeting on the 21st instant.

IMPORTS.

Port of Dublin.

October 2nd—Per City of Munich, from Hamburg and Antwerp, 75 cases window glass, H. Sibthorpe and Co.; 80 do. do., W. Collins; 46 do. do., to order; 41 do. do., Hoyte and Son; 20 do. do., W. Martin, Son, and Co.; 11 do. do., T. and C. Martin, Ltd.; 10 do. do., T. Saunders; 130 do. do., J. Arigho; 30 do. do., Brooks, Thomas and Co., Ltd.; 287 do. do., T. Dockrell, Son and Co., Ltd.; 220 bags cement, 185 steel joists, 3 cases marble, to order. Per Lady Roberts, from London, 330 sacks cement, to order. Per Lady Hudson-Kinahan, from London, 1,500 sacks cement, to order.

October 4th—Per Dagbjorg, from Dunkirk, 3,750 bags cement (shipped at London), McNaughton and Co. Per Lady Wolseley, from London, 1,000 sacks cement, A. Agnew.

October 7th—Per Francis, from Cowes, 200 tons cement, W. F. Chadwick. Per Penrhyn, from London, 345 tons cement, T. and C. Martin, Ltd. Per Lady Martin, from London, 600 sacks cement, Wallace Bros., Ltd.; 32 pkgs. lead, T. Dockrell, Son and Co., Ltd.

October 9th—Per City of Oporto, from Hamburg, 1,890 cakes asphalt, 6 cases window glass. Per Mary Stewart, from Carnlough, 96 tons whiting, H. Moore and Alexander. Per Lucy, from Newhaven, 90 tons whiting, Boileau and Boyd.

October 10th—Per Gerd, from Trondhjem, 32,248 pcs. boards, J. Kelly and Son. Per Coniston, from Chester, 14 tons bricks, J. Jameson; 10 do. do., T. and C. Martin; 26 do. do., R. Martin and Co.; 6 do. do., J. McFerran.

October 11th—Per Dunscore, from Dalbeatty, 150 tons granite, G. Rome and Co. Per Lady Dufferin, from Baltimore, 421 pcs. oak lumber, 886 pcs. pine lumber, to order. Per Lady Roberts, from London, 1,500 sacks cement, T. Dockrell, Son and Co., Ltd.

October 14th—Per Carrigan Head, from Quebec, 25 pcs. elm, 8,172 pcs. firwood, sawn, to order.

October 15th—Per Dunira, from Whitehaven, 140 tons plaster, T. and C. Martin, Ltd. Per Lady Hudson-Kinahan, from London, 1,000 sacks cement, J. Kelly and Son; 800 do. do., A. Agnew.

OUR ILLUSTRATIONS.

Timoleague Church, Co. Cork.

In this issue we publish the very interesting design of Mr. W. A. Scott, A.R.I.B.A., for Timoleague Church, which was hung at the Royal Hibernian Academy this year. Some time ago designs for this church were submitted by several architects, and recently we published an illustration of the design selected, and now being carried out.

ENGINEERING NEWS.

Lisburn.—At the monthly meeting of the Urban District Council, Mr. G. Midgley Taylor, C.E., reported that the work included in Messrs. Firth and Co.'s contract had now been practically completed, the only works remaining being of quite small dimensions. For all practical purposes, the amount of the work which had been executed might be taken at £36,000. On the motion of Mr. Hanna, seconded by Mr. Griffith, it was resolved that the Sanitary Committee be requested to consider the proper utilisation of the sewerage farm at New Holland. The following letter, addressed to the Chairman, was received from Mr. J. M. Taylor, C.E.:—"Caxton House, Westminster, S.W., 1st October, 1907. Dear Sir,—With reference to the committee meeting that I attended as to house connections, and to your request that I should write you personally as to my fees on the matter, I have given the subject careful consideration, and have the following remarks to make:—In the first place, you desired information as to the general policy to be adopted in making the various connections with the new system, and on this point, as you are well aware, the Council have the liability of re-connecting with the new system the whole of the properties that are at the present moment legally connected with a public sewer. I have no doubt that while the various connections are being made, it will be found in many cases that the existing connections to the old system are in an unsound and insanitary condition, and as such should be condemned by the Sanitary Inspector. This condemnation, however, does not, in my opinion, relieve the District Council from the onus of performing so much of the work as is necessary to connect the old drain with the new sewers, but would throw the onus upon the householder to reconstruct in a satisfactory manner his own drain. In some instances, no doubt, it will not be necessary to disconnect each individual property from an existing sewer, but it will be found that the existing sewer is in a sufficiently good condition to be connected with the new system by means of a properly constructed intercepting chamber and storm overflow feeding into the continuation of the old sewer which was picked up. From my very large experience of connection work of this nature, I am certain that there are only two possible methods for the carrying out of this work. The first is for the Council to purchase plant and materials, and to employ direct labour under competent supervision for the work required. The second is to have prepared a specification with conditions of contract, and obtain tenders upon a very full and complete schedule, so that after a tender has been accepted the whole of the work performed for each connection can be measured up and paid for in accordance with the terms of the accepted schedule. The latter process appears to me to be the proper course for your Council to adopt, as in the former instance the Council would have to spend a considerable sum of money in timber, pumps, tools of all description, which would be useless to them after the termination of the work. Acting on the assumption that a schedule contract would be entered into for the work, the next point upon which you desired information was as to the process by which such a schedule could be obtained. I am prepared to furnish your Council with a specification, conditions of contract, and schedule, and advise upon the acceptance of the tenders, make all necessary drawings, and supervise the work from time to time as may be necessary, for a commission of five per cent. upon the value of works executed, together with my out-of-pocket travelling expenses visiting Lisburn. It will be within your recollection that your Council made a bargain with me in completing Mr. Tennent Henry's scheme, that I should receive the sum of £120 for expenses, and I may mention that I have spent very considerably more than this sum up to the present time. As it is extremely doubtful how long the work of connection will last, I am not prepared to accept a lump sum for expenses, but should expect to be paid what it actually costs me in train fares, sleeping cars, boat and hotel bills, when incurred. The average cost of each journey to me approaches £7 10s. I should imagine that the work would not last more than twelve to eighteen months, and that a visit once every six weeks should be sufficient. Now, as to the local supervision of this work, I have, as I told your committee, no interest whatever in retaining the services of Mr. Griffith, but I have been thoroughly satisfied with the quality of the work which he has procured for your Council, and under these circumstances I think it would be a pity not to employ Mr. Griffith on the work of connections. In addition to this, I am certain it would be the most economical course that your Council could adopt. Mr. Griffith is acquainted with every junction, every sewer, and has intimate knowledge of most of the house connections in the town, and this knowledge must be of great value both in the matter of saving of cost on the connections themselves, and in the length of time which will be occupied in their construction. I should like to add that I consider the Urban District have

a fine, sound, and well-constructed drainage scheme, and that the work of connections should, in my opinion, be carried out in an equally sound and satisfactory manner, and unless this course is to be adopted I should decline to be in any way connected with the future work."

Newtownforbes.—Tenders are invited for carrying out sewage works at the Convent of Mercy, Newtownforbes, according to plans and specifications prepared by Messrs. Kaye-Parry and Ross. Tenders should be sent in on 25th inst.

Naas.—Mr. P. Blake, 203 Great Brunswick Street, Dublin, has secured the contract for carrying out the new drainage scheme at the kennels of the Kildare Hunt Club. Plans by Mr. F. E. Bergin, B.E.

Ballyknockan Waterworks.—The Naas No. 2. Rural District Council will, on 2nd prox., consider tenders for carrying out the above works, which comprise the construction of an intake tank pipe, the supplying and laying of 3-inch cast-iron pipes, the providing and fixing of street fountains, sluice valves, air valves, and other works in accordance with specification to be seen at the office of the Clerk of the Council, Naas, or at the office of the Council's engineer, Mr. Francis Bergin, B.E., 36 Westmoreland St., Dublin. Tenders will be received up to two o'clock p.m. on Friday, 1st prox. The contract will be provisional on the sanction of the Treasury being obtained to the loan authorised by the Local Government Board for the works.

Newbridge.—Sewerage Works.—These works are now about approaching completion. A feature of the work is that the main sewer entails a cutting to the depth of 27 feet. Mr. W. A. Beck, Newbridge, is carrying out the work according to the designs of Mr. F. Bergin.

Pembroke. The Urban District Council invite tenders from persons willing to contract for the repairs of the Dodder River wall, Anglesea Road, between Anglesea Bridge and Brookfield Terrace, and all works necessary or incidental thereto. Tenders close to-day (Saturday).

CONTRACTS.

URBAN DISTRICT OF BRAY.

WORKMEN'S DWELLINGS.

TO CONTRACTORS.

Notice is hereby given that the Bray Urban District Council will, at their meeting to be held in the Town Hall, Bray, on Monday, 28th day of October, 1907, at 10.30 a.m., be prepared to receive and consider Tenders for:—

- (a) Erection of sixteen two-room Cottages, being East Block, Purcell's Fields Scheme.
- (b) Erection of nineteen two-room Cottages, being South Block, Purcell's Fields Scheme.
- (c) Taking down and removing sundry Cottages, and additions and repairs to others; also for North and West Boundary Walls at Purcell's Fields.
- (d) Making Roads, Footpaths, Playground, Boundary Fence, and laying Water Mains, Sewers, Drainage, etc.,

in accordance with Plans, Specifications, and Conditions prepared by C. H. N. Sutter, Esq., C.E., Surveyor and Architect to the Council. Plans, etc., may be inspected at the Town Hall, between the hours of 10 a.m. and 4 p.m. Intending Contractors will be required to deposit the sum of £2 2s. with undersigned for Form of Tender and Copy of Bill of Quantities prepared by Samuel H. Bolton, Esq., 19 Upper Merrior Street, Dublin, which deposit will be refunded on receipt of a *bona-fide* Tender. Contractors will be required, as far as possible, to use materials of Irish manufacture, to employ local labour, and pay standard rates of wages.

The Council reserve the right to make separate Contracts for the different Sections, and will require two solvent sureties for the due performance of any Contract.

The Council not necessarily bound to accept the lowest or any Tender.

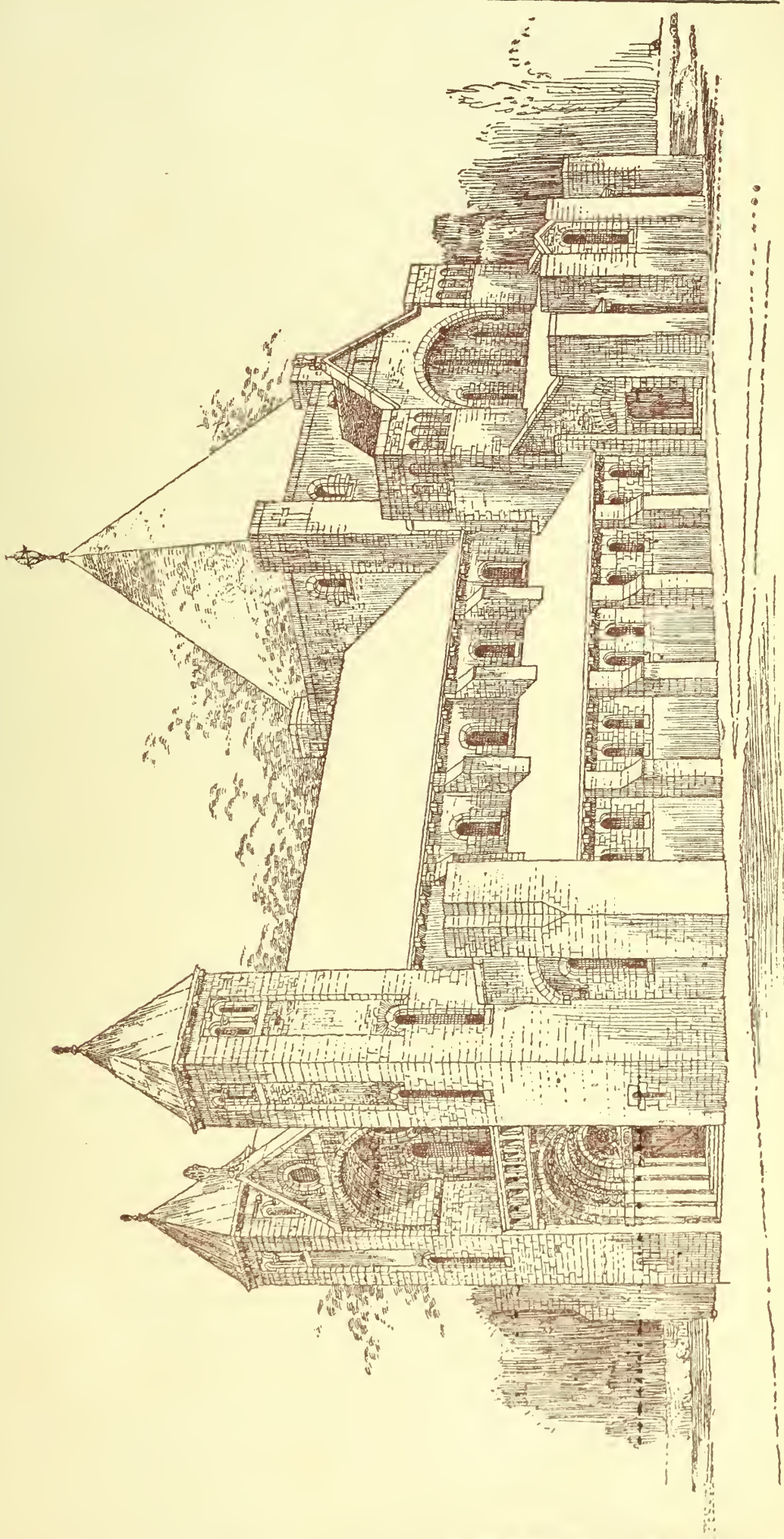
Tenders to be endorsed "Tender for Workmen's Dwellings," and to reach undersigned by hour and date above mentioned.

(By Order),

P. MACDONNELL,

Clerk to the Council.

Town Hall, Bray, 15th October, 1907.



Designed by Mr. W. A. Scott, A.R.I.B.A., M.S.A.
and
J. H. Scott, A.R.I.B.A., M.S.A.
1874

Design by Mr. W. A. Scott, A.R.I.B.A., M.S.A. One of the Competitive Designs for the New Church at Timoleague.

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THE IRISH BUILDER AND ENGINEER.

A JOURNAL DEVOTED TO

ARCHITECTURE, ARCHÆOLOGY, ENGINEERING, SANITATION,
ARTS AND HANDICRAFTS.

Every Second Saturday.

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HEAD OFFICE

November 2, 1907.

34 LOWER ABBEY ST.,
DUBLIN.

Price 1d.

TOPICAL TOUCHES.

We regret to record the death of G. F. Bodley, R.A., one of the most accomplished and distinguished architects of the day.

* * * *

The Corporation of Dublin held a sale of old building materials at the site of the proposed new Technical Schools in Bolton Street on Thursday last, so we presume the new work will soon begin.

* * * *

The coming winter in Dublin threatens to be a very trying one for artisans and labourers. The number of men out of employment is most serious, and unfortunately there are no signs of any revival of work to tide over the winter.

* * * *

The tender of Mr. Kevin Toole has been accepted for the new memorial chapel of the Dominican Order, Eccles Street, Dublin; also new dormitories, refectory, etc. The cut stone front will be of granite. The total cost will be about £6,700.

* * * *

Recently, representatives of the Society of Architects had a conference with the English Local Government Board on the question of building contracts and matters affecting the position of architects and quantity surveyors employed by Boards of Guardians, etc.

* * * *

Important matters were discussed, and in due course, when the report is made public, we hope to revert to the matter.

* * * *

No settlement of the long-standing dispute between the Institute of Architects and the Dublin Master Builders' Association has yet been arrived at, but the deadlock which at one time threatened appears to have been removed. So far as we can make out, the old conditions of contract appear to remain in pretty general use.

* * * *

The threatened great railway strike, if it should unfortunately ever take place—and it is devoutly to be hoped it will not—will produce, probably, about as much dislocation and distress in the building trades as it is possible to effect in any single industry. Nowadays so vast a proportion of building material is railway borne that it is inevitable many men would be thrown out of employment for the whole winter at least. Five million persons in the United Kingdom are, directly or indirectly, connected with the building trades.

* * * *

The opening meeting of the Architectural Association of Ireland was held on Tuesday last. Arising out of the President's address, a small committee of five was appointed, *pro tem*, for the purpose of conferring with Dr. M'Dowel Cosgrave and other gentlemen interested in old Dublin, with a view to determining what steps should be taken to arrange a systematic and complete measurement, drawing, and photography of old Dublin, particularly the eighteenth century. Mr. P. L. Dickinson was nominated hon. sec. *pro tem*.

Mr. R. Norman Shaw has prepared a sketch design for the exterior of the proposed new Canadian Government buildings in the Strand, London. This has been before the County Council recently, and as Mr. Shaw refused to accept any fee for his services in the matter, it was unanimously determined to accord him a special vote of thanks.

* * * *

The opening meeting of the Institution of Civil Engineers of Ireland will be held on Wednesday next, the 6th November, when the President, Mr. J. H. Moore, will deliver his inaugural address. The usual club dinners will be continued this session. Members desirous of dining should communicate with Mr. James Dillon, 36 Dawson Street, Dublin.

* * * *

The libel action of Crawford and Frame *v.* Vance was begun and continued during the week. The evidence so far has brought out little that was not previously known. On Wednesday the Lord Mayor was examined on behalf of the plaintiffs. As we are precluded from making any comment upon the case, we defer publishing a report pending the conclusion of the trial.

* * * *

In a speech at Sligo, the other day, Mr. John Redmond spoke of the great and pressing need for better housing of the working classes in the Irish towns. To overcrowding was mainly to be attributed the terrible ravages of consumption, intemperance, and other evils that follow. He quoted figures showing that the proportion of families occupying one room only was extremely high in Ireland as compared with other countries.

* * * *

The new lighthouse on the Fastnet Rock, nine miles off the coast of Cork, has lately been completed at a cost of £84,000 by the Commissioners of Irish Lights. It is composed entirely of blocks of granite from Cornwall, keyed so as to interlock. A special steamer was built in connection with the erection of the lighthouse, at a cost of £10,000. The light is probably the most powerful on the Irish coast. Why granite from Galway or Co. Down was not used we cannot say.

* * * *

In a letter addressed to the Irish Industrial Development Association, and published in their annual report, Messrs. D. Brown and Son, of Denaghmore, write as follows:—

Would it not be wise for you to draw the attention of English manufacturers to the fact that the Irish Labourers Act can be used greatly to the benefit of those who wish to establish new industries? The guardians are able to build a new house and let it, with half an acre of ground, for 1s. 6d. per week, and it is their duty to provide for all labourers, irrespective of whether they are factory workers or employed in agriculture. There are a great many businesses in England which are now so busy that workers cannot be had, and such manufacturers would probably be glad to establish branches in small Irish villages, especially in those trades where carriage is not a very important item, though, indeed, we believe it would be possible to find a great many places in Ireland where goods could be delivered in Manchester and Liverpool as cheap as they can be had from Nottingham, Derby, and other centres.

THE ARCHITECTURAL ASSOCIATION OF IRELAND.

OPENING MEETING, SESSION 1907-8.

On Tuesday last, the President, Mr. R. M. Butler, F.R.I.B.A., read the following address:—

The Work of the Association.

It has been customary in this, as in other societies, for the President, in opening the session, to address some observations to the members on the work of the past and the hopes of the future. In this Association it has become more or less customary for the President to deal with some particular point, some new phase of our work, some vital point of our hopes as a body, some practical thought for the future. I can recall the eloquent address of our first President, Mr. Richard Caulfeild Orpen, when he brought before our mind's eye some of the glories of our calling, directed us in thought to the achievements of the past, the pleasures that lay in the sincere and whole-hearted study of our art, and I well remember how I almost followed him through the streets and old quadrangles of Oxford, as he recalled one summer night's ramble through the splendid architecture of that ancient city.

Then we had Mr. Pentland's practical and excellent address, and more recently Mr. McCarthy's appeal to us to develop a national style, Mr. Batchelor's capital and thoughful suggestion for becoming acquainted as students with the practical details of our work, a suggestion culminating in the (for the time being) highly successful Saturday afternoon visits.

Education and Native Materials.

We had Mr. Allberry's admirably worked-out and lucid scheme of education, the realisation of which, we all hope, is only in abeyance, and last, but not least, we had Mr. Holloway's stirring appeal to us to be true to ourselves and our fellows, to be natural, to be good Irishmen rather than indifferent Englishmen, to do all that in us lay to help the struggling industries of our own country, to use the native materials that lie ready to our hands, rather than to search abroad for strange, uncertain, and novel treatments and materials. Other excellent addresses there were; these are but a few that linger most in my mind. The chief object they produce in me at this moment is the impression that I have very little that is new, very little likely to be helpful, to lay before you.

Architecture as a Calling.

In speaking to you as fellow-students of this onerous and somewhat slavish calling, I can only say that if it is slavish, if it is hard to, as it were, wring a sustenance from an unkindly soil, there are to those who value them compensating advantages in the pleasure of much of the work, in the joy of the growth and realisation of many of the conceptions that even we ourselves afterwards recognise to be feeble, and unworthy of the occasion—there is pleasure in the doing of satisfactory and honest work, and a reward in its happy realisation in bricks and mortar. To those who set before them as life's goal either money or honours, I venture to offer the oft-repeated advice: do not touch the architectural calling, for there is little of either wealth or honour to be gained in its practice—lucky is he who, with a very modest competence, gains even friendly recognition. The prizes are few, the blanks are many. Only to those who are content with the small things of life, and have a keen and strong love for the calling, is it even tolerable, is it ever other than the veriest drudgery.

Work Done by the Association.

It may be of some interest to briefly survey what we, as an Association, have done for architecture, what our present position, and what our hopes. It is but a comparatively few years since I myself was first an apprentice, though some of our younger students may look on it as nearly a lifetime! Eighteen years ago. There was then in Dublin absolutely no training whatever specially devised for architects, no means by which the students and younger practitioners could learn to know and fraternise with one another; few but the seniors of the profession had even so much as a nodding acquaintance. The nearest approach to architectural studies were the Engineering School in Trinity College, the lectures in the College of Science, the Drawing Classes in the Metropolitan School of Art, and a couple of classes in Building Construction and Quantity Surveying, respectively, in the Kevin Street Technical Schools. This was the state of things in 1889 and for several years afterwards. The architectural student "picked up" what he could in an office, his duties being mainly tracing and copying letters—for any initiation into the realities of the calling that was to be his life's work he was dependent upon such light as his master might in his good nature cast upon the subject.

Often in those days I thought if we only had an association like the London A.A., on a small scale, what a grand thing it would be. Not until 1896 did the present Association take shape and form, arising, as it were, from the ashes of the old association that was founded in the sixties, and lasted but a few years. The then surviving members of the old A.A.I. were amongst the warmest supporters of the new, and of the younger men who helped to found the association in 1896, at a very successful meeting held in the Grosvenor Hotel, nearly all are actively with us still. Members joined quickly, and despite many mournful prognostications of squabbly failure, cliquism, etc., we are still alive, and, I venture to think, after eleven years of existence, stronger than we ever were.

At first we appeared sometimes to conflict with the older and more conservative Institute of Architects, but these things soon smoothed themselves out, and we got along very pleasantly. As soon as the older members of the Institute got to know us better, they learnt that we were not such red-handed revolutionists as they thought, but merely a band of students with the simple aim of doing a little for each other, themselves, and incidentally the profession of architecture. Our aims, we said, were primarily educational, and little else. From a hard and rigid standpoint of puro and simple educationalism we must, alas, I fear, be written down as a failure; but we have done other things, we have promoted friendliness and regard where there was formerly, if not jealousy or suspicion, at least indifference. We have certainly, to my own personal knowledge, stimulated and encouraged at least a few promising students. Our classes, badly attended as they have been, have helped many, and have sowed the seeds of knowledge where there would in all probability have otherwise been ignorance, and if I may dare breathe it, we have, I verily believe, stirred up into some degree of renewed life the old Institute, to which we now act as a "feeder," and long may the old Institute flourish, and the Association in friendly company. Above all, we have undeniably established a considerable degree of *esprit de corps* where formerly there was none. Now we have a comfortable and convenient home of our own, and generally good fellowship prevails.

We have failed, so far, to establish a general and organised educational curriculum. We have a complete scheme of education, but it exists only on paper. Alone of all the callings that venture to call themselves a profession, we shuffle on, picking up such stray crumbs of knowledge as we may by the wayside; alone we still exist without a set meal of study and knowledge.

Incompetent Competitions.

Every cheap-jack, every handy-man, or hedge-carpenter that can knock two boards together, or put two lines on paper, may dub himself architect, and none may say him nay. We have reason in this connection to be profoundly affronted and outraged by the recognition given such men by the Government in Ireland. A clause in a measure, the Irish Labourers Act of 1906, was passed *unanimously* by both Houses of Parliament, was designed by a convinced and broad-minded minister as a protection to the public service, and incidentally to architects, has become to them an instrument of oppression and insult. I cannot use any other term for the huckstering "examination" and subsequent recognition of men who have no call to the honourable title of architect.

The Classes of the Association.

Our classes have been badly attended from the first, and there is almost certainty will so continue so long as the profession has not alone a wide-open front door, but half-a-dozen back doors, not to speak of a score of airy French windows, that require no potful of dynamite to force them open.

Registration.

Until we have some barrier to restrict absolutely free and indiscriminate admission, not alone through the front door, but by means of all the numerous supplemental and hidden entrances; in other words, until "Registration," in some shape or form, is accomplished, so long will the standard of education be low. It is absolutely hopeless to expect anything else—how can we. Youth is youth, and few lads will immolate themselves on the altar of sacrifice as an example to their fellows. It has been suggested that every member of this Association, or the Institute, who takes a pupil, should make it an absolute *sine qua non* that the pupil should attend regularly the classes of this Association, under pain of dismissal. Much good might be done by this means, and easily too, but the real remedy is some form or other of registration.

The Prizes.

Our excursions, visits to buildings, and our Museum should all be both pleasurable and highly instructive if only more largely availed of. There is a fair library, but no very great use appears to be made of it. Finally, there are our prizes offered for competition, in design and measured work. They are not very large in value, but would be sufficient in any other country to arouse tolerably keen competition. Occasionally some very meritorious work has been entered, but, as a rule, the response is not gratifying. For some years past the Association Studentship, value ten guineas, and tenable for a week's sketching on the delightful annual tour of the English A.A., has been a walk over for the solitary competitor, who, in more than one instance, has "jibbed" at the easy and pleasant condition attaching, so much so that the committee have at length determined to abolish or suspend this Studentship, and a great pity it is that such action should be necessary. Having said so much, may I plead with the junior members to seek to acquire, and diligently practise, the delightful accomplishment of sketching. I have always envied those able to sketch really well. Few become real artists at sketching, but anyone with a little perseverance may learn how to record in simple manner the work he sees, and that strikes him as good and instructive, but, above all measured work, it is the very foundation of an architect's training. Without it few men have gained any position as artists in the calling, and with it no man is wholly ignorant. The wide development of modern practice calls for more and more varied knowledge, but measuring and sketching still retain unchallenged all their old-time importance. I hope the youngest of young members will measure and sketch more than their predecessors.

Old Dublin.

This brings me to another subject. We often hear it said that there is little to measure or sketch in Dublin. That is not so. Few cities in the United Kingdom have more material for such work. It varies from the largest and most important to small and insignificant, but delicate and beautiful interior work, such as the superb old plaster ceilings, the beautiful marble inlaid mantelpieces, rich joinery and wood inlay, with which Dublin still teems. Much of this work, alas, has passed away entirely unrecorded. It is passing unrecorded every day. Many a tumble-down Dublin tenement house boasts a fine modelled plaster ceiling.

An Opportunity and a Coincidence.

Some time ago, when casting about for a few points to put before you, I bethought me of this important matter, when, by a strange coincidence, I received two letters, the one from Mr. Herbert Batsford, son of the late B. T. Batsford, the well-known publisher, and the other from Dr. MacDowel Cosgrave, drawing attention to this very point. Mr. Batsford was desirous of knowing what remained in Dublin still, and the possibilities of publishing a book of good style. It is strange, indeed, that no complete work of the Renaissance in Dublin or Ireland has ever been published. I have had a most interesting correspondence with Mr. Batsford on the subject, and have since gleaned one or two facts in connection with the matter. Dr. MacDowel Cosgrave is keen and enthusiastic on the subject, and it appears to me that our Association is neglecting its functions in not taking some active steps for the recording of this old Irish work. The Royal Society of the Antiquaries of Ireland has rendered a great national service by its attention to the ancient remains in Ireland, but it is essentially an archaeological society—it devotes its energies mainly to the Middle Ages. Is there any reason why our Association should not step into the gap and rescue from oblivion the work of the eighteenth century in Ireland, and record, by means of photographs or measured drawings, especially anything in danger of destruction? It is safe to say that in London and the larger provincial cities and towns of England, not a bit of work worth measuring remains unmeasured. We have that superb architectural production, the Association Sketch Book, published quarterly, and representative of the best draftsmanship of the day. Now, what I want to say to you is this: that I think every effort of our Association should, for some few years to come, say five years, be directed to this work. The educational value is incalculable, the labour ought to be one of love. Our Travelling Studentship might be revived with this object, and the Institute prize might similarly be directed to this end. I have no faith in the value of the schemes of design, commonly set for such prizes—the accurate measurement of one small building, or portion of a building, would, educationally, be worth more than a hundred such prize designs. With all this I fear the Association alone would never compass the work, and I believe it to be both necessary and desirable to enlist the sympathy of cultured amateurs. There are in Dublin many gentlemen of cultured taste who

would interest themselves in the matter if approached. Dr. MacDowel Cosgrave has suggested to me the formation of a society to continue, say, for three to five years. Such a society would, I am confident, be supported; the subscriptions might be devoted to procuring sketches, measurements, and photos supplementing those already existing, and eventually publishing a series of high-class illustrations of Irish architectural work. Such a volume might be of the very highest type. The Association would serve its own interests and that of art and of the country by embarking on such an undertaking, or by assisting by every means in its power such a scheme. I suggest that, as a preliminary step, a small organising committee be formed to-night, with power to add to its numbers, and to take steps for the purpose of assembling a meeting and electing a general and representative committee.

The Interest of Dublin.

The City of Dublin literally teems with architectural work, worthy of being recorded. We have first the fine Palladian structures of Chambers, Gandon, Cooley, Casels, Mack, etc., such as the Custom House, the front of Trinity College, the Royal Hospital, and its plaster ceiling to the chapel, and carving attributed to Grinling Gibbons. Next we have those splendid mansions, such as Leinster House, Charlemont House, Aldborough House, Powerscourt House, Belvedere House, Blessington House, and many others, few of which have been either adequately sketched, measured, or photographed. We have such buildings as the Rotunda Hospital, by Endors, with the Assembly Rooms, also Steven's Hospital, illustrated by Aheron, the Royal Hospital, the Alms House, Peter's Street, etc., etc., together with the later work of Francis Johnson, as well as hundreds of the minor mansions and public buildings. Some of these have noble exteriors, others are plain in the extreme, and are only remarkable for the beautiful interiors. Then we have, a little distance from Dublin, such houses as Powerscourt House (Enniskerry), Russborough House, Castletown House. In addition we have a few old remains of the ancient Huguenot settlement in Dublin. If all these existed in another city of the United Kingdom it is perfectly safe to say they would have been measured, drawn, sketched, and photographed at least a dozen times over. Some splendid buildings, such as the King's Inns, are scarcely known, even by appearance, to Dublin architectural students. The splendid plaster ceilings and noble mantels are fast being destroyed by neglect and decay, or gutted out and sold to art collectors. The very names of the architects are sinking into oblivion. Recently I saw at Mr. Michael Butler's an absolutely unique statuary marble mantel, all set with beautifully cut paste, the general effect being most elegant. Now, I say such work as that should not have passed out of Dublin without being recorded in some shape or form, and it is going on every day. As to the names of architects, recently Mr. Herbert Batsford asked me for particulars of one John Aheron. I am ashamed to say I had never even so much as heard the name before. Mr. Batsford came into possession of a very fine work of Aheron's, published in 1756, on the Classical Orders, and also of a work of his, dated 1751, entirely executed by the pen, with common ink, in imitation of type. Through the courtesy of Mr. Batsford I am enabled to put both these two unique works before you on the table to-night. All I can learn of Aheron is that he wrote these works, and also illustrated some fine plates in Peter Wilkinson's *Dublin Magazine*. I have searched the old Dublin Directories and the Record Office without results. Aheron is only one of several, and it is most deplorable this should be so. If you will glance over Aheron's work, drawn and written by hand, you will see that it is an absolutely unique work; the infinity of time, labour, and skill bestowed upon it is simply stupendous.

What can be Done?

Mr. Batsford is keenly interested, and would, I believe, be glad to co-operate in any way in regard to publication. As to the necessity for timely measures, the necessity is obvious. In a letter from Dr. MacDowel Cosgrave, the other day, he tells me that the Corporation are about to take down Lamb Alley, Cornmarket, the left wall of which is one of the old flanking walls of Newmarket. The curious old Leinster Market, off D'Olier Street, is likewise doomed, as are 56 and 57 South Great George's Street, where Dr. Moss first established his lying-in hospital. These are, as Dr. Cosgrave remarks, valuable records of old Dublin; they are not suitable for photography, but our young students could do no better work than sketch and record them. In regard to making out illustrations of old Dublin, the fine series of engravings by Malton would be most valuable. There are also many other engravings available. Some of Gandon's original drawings still exist, as well as a few of Patrick Byrne's (a pupil of his), and grandfather to Dr. W. H. Byrne, Upper Baggot Street. All these exist, and

should be collected and supplemented. It is a large and important work that I outline, but a necessary one. With the passing of another generation, the difficulties of accurate record will be enormously increased. No systematic attempt has been made in modern times. I believe Dr. Cosgrave and Mr. Leonard Strangeways have a large number of photographs taken by themselves, while our old friend, Mr. T. E. Hudman, some years ago, photographed a number of old Dublin buildings. These were reproduced in a volume of an American work, entitled, "Colonial Architecture," a section being devoted to Dublin work. This volume I am also enabled to lay upon the table for your perusal to-night.

The whole subject is one which demands time, energy, and enthusiasm. In any movement so inaugurated, the Association ought to bear a prominent part, if it is to justify its existence, and I hope I have said enough to interest the general body of our members, and to fire the minds of our younger friends.

A New Society.

I shall say no more, but simply move the adoption of a resolution that a *pro tem.* committee be formed to convene a public meeting to consider this subject, and to nominate a general committee to take charge of the matter. I think the Association would be doing itself honour by preparing the way for such a society, by lending its rooms, and generally assisting by every means in its power.

The condition of the people supporting the great art of architecture in Ireland in the eighteenth century represented a wonderful state of culture. It was marvellous, considering the previous state of Ireland. It, in fact, has been said, and truly said, that no country in the whole world could point to such material, artistic, and intellectual progress as Dublin during the latter half of the eighteenth century. No people progressed more, and no people showed themselves more fully alive to the claims of art.

Dublin Treasures.

Glancing through Mr. Fitzpatrick's book on Dublin yesterday, I came across a passage in his chapter on "Social Life in Eighteenth-Century Dublin." He says, speaking of this period, "We are enabled, for the first time in the city's history, to form an accurate idea of the circumstances of the ordinary lives of the people of Dublin, and to picture to ourselves a vivid presentment of the city as it then appeared to contemporary onlookers—a numerous and wealthy resident aristocracy who lived much of their lives in public, who fostered arts and letters, and set a high standard of public taste."

Referring to this book, I should remind you, in case any of you are not aware of it, that two books have lately been published on Dublin—the one, Mr. Samuel Ossory Fitzpatrick's work, from which I have quoted; the other, the Visitor's Guide to Dublin, published by Sealy, Bryers and Walker for the International Exhibition authorities, and costing only 1s.; it is by Dr. MacDowel Cosgrave and Mr. Leonard Strangeways, I believe. Both books are admirable.

In the guide you will find described nearly every building of architectural value, and the authors, in dealing with eighteenth-century Dublin, have brought to bear upon it an extraordinary and intimate acquaintance with old Dublin; every Irish architect and student should possess these two books. So far as the letterpress of the guide book is concerned, it leaves little room for improvement, being most admirably arranged, and would afford an excellent accompaniment to any publication of illustrations which may hereafter be issued. The necessity of a Society to take charge of the work of recording eighteenth-century Dublin (and indeed the scope might not necessarily be limited to that period) is evident when we consider the destruction that has already occurred, and the possibility of still greater taking place in the future. Moira House, for instance, is altered out of all recognition.

The most of the minor structures are in declining neighbourhoods. Many are tenement houses, and even the others, which still preserve a semblance of their former state, and are occupied by a more affluent class of tenants, are not appreciating in value or in popularity as residences, and may at any time be swept away like the doomed houses in Upper Merrion Street.

Henrietta Street has several houses of great beauty; Dominick Street has its quota; in fact, every old street in Dublin has still some houses left with magnificent interiors. Listen to how the Exhibition Guide describes No. 8 Ely Place, formerly Ely House, the town residence of the Marquis of Ely:—

"No. 8 Ely Place has a noble staircase—with well carved doorways and fine metal balustrades, the panels representing the labours of Hercules. The stucco is of pure Italian design; the drawingroom, of which the ceilings are finely modelled, have silver grates and white marble mantelpieces, with ground work of inlaid Sienna. The door plates also are of silver!" This is a picture of the town residence of

an Irish nobleman of the day, and not of an Italian palace or a "Castle in Spain."

I believe I am correct in saying that the silver grates and costly marble mantels no longer exist—at all events, I have heard some change was made a few years ago. Rathfarnham Castle, with its splendid Roman arch (by Chambers) as an entrance gate, was the country seat of the same family, and has still some paintings by Angelica Kaufmann. Kenmare House, in North Great George's Street, still has some beautiful frescoes—said to be the last remaining in the city, and also, I believe, attributed to the same artist.

But I will not weary you with a catalogue of all that remains in Dublin. You will find it all better and more accurately described in the guide book I name than I could.

The Work of the New Society.

The society I speak of should be closely identified with the architects of Dublin, and therefore it is that I urge the Association to take a prominent part in calling it into existence. To be successful it should be far broader based than a purely architectural society; other gentlemen of taste and knowledge should be associated with its governance, particularly those who have already interested themselves, such as Dr. Cosgrave, Mr. Strangeways, and others; and, of course, Mr. Hudman should also be identified with it—if he has leisure. There should of necessity be an annual subscription for members; donations might also be invited. Contributors of drawings or specially good photographs might be exempted from subscribing. The Committee should invite the loan of all illustrations of the period, catalogue them, recording their then owners' names, and, if suitable, arranging them for reproduction. Books dealing with the period should be examined. Photographs, of which a good many exist in the possession of Dr. Cosgrave, Mr. Hudman, and others, should be collected and arranged. And then we come to the more vexatious part—the crux. I say emphatically that this Association should not be content to be identified with any illustrated publication that did not contain a considerable proportion of accurately-measured and skilful drawings by architectural draughtsmen. No matter how excellent photographs may be, or how beautiful an engraving, they do not, and cannot, record architecture in the same fashion as a drawing. Besides, drawing is the recognised medium which the architect has for expressing himself. What I mean is that you cannot study, you cannot analyse a photo or a print. You will never ascertain truly from either one or the other, as architects, what it is in work you see and admire that constitutes the subtle something that distinguishes it as being good art. The profiles of mouldings, for instance, are the very essence of a design. Nothing will record them save a drawing, and to be accurately drawn they must be measured.

Now, Mr. Batsford put me the pertinent question: "But who will measure and draw?" As I have said, in England plenty of people would be ready to do so, but our prizes have not been so enthusiastically competed for as to lead us to hope for much voluntary help in that direction, and possibly the undertaking is so large as to make the task too big for volunteers. If this should be so, then the society should be made strong enough to engage a small staff of competent draughtsmen, and I trust that these would be drawn from amongst our own students.

There are already, so far as I know, in existence measured drawings of several of the more important eighteenth-century buildings in Dublin—the Custom House, the Casino at Clontarf, the Roman Arch at Rathfarnham, the Dining Hall of Trinity College (attributed, wrongly, to Inigo Jones), St. Catherine's Church, Thomas Street; Powerscourt House, William Street (the set of measured drawings, by Mr. Fred Core, which won our Travelling Studentship, and were subsequently purchased by the late Lord Powerscourt). Some occasional sketches by members of our Association are also in existence, but the interiors are almost untouched. I think that while so much work remains unmeasured in Dublin, that our Association should certainly encourage its measurement and delineation in preference to extern work.

Prizes to be Awarded.

In addition to the Association Studentship, the new society might itself offer a prize, or prizes, for competition. I am sure the society would be well supported. I have only had opportunity of speaking to a few persons on the subject, but they all approve of the idea. The formation of a temporary separate society is, I must impress upon you, wholly Dr. Cosgrave's idea—not mine. It seems to me to be just the very way out of the difficulty that confronted me when I was first thinking over the matter, and in correspondence with Mr. Batsford. Two or three persons whom I have spoken to have warmly received the idea. My friend, Mr. Anthony Scott, who would be with us here, were it not

that he is to-night just arriving in the more classical atmosphere of Rome, told me he would be willing to offer a small prize. The little prize annually given by the President of this Association will this year be devoted to the same object. A State grant might possibly be laid claim to by a society undertaking so important and really national a work. I don't know whether the claim would be successful or not. The Royal Hibernian Academy has not been very lucky, and perhaps independence might be best of all.

A New Style?

It may possibly seem to you a very insular and almost provincial thing to dwell so much upon Dublin work; but, after all, Dublin is a fine city—one to be proud of. Now we are often appealed to to devise a purely native Irish style of architecture. I believe that to be utterly impossible. It would mean the invention of practically a "new style" in architecture—a thing that, in the world's history, has never been accomplished. Some, too, think that a native Irish style may be found in the resuscitation of the ancient Celtic work, as typified in Cormac's Chapel, etc. That also I believe to be impossible. These styles in their day were not invented, or suddenly called into existence, but represented a natural growth—"the history of the country written in stone"—arising from the natural habits and aspirations of the people. The whole tendency of architecture throughout the world is towards universality. Take, for instance, the enormous French influence in all the best recent American architecture. The *Ecole des Beaux Arts* is "writ large" on it all. It is, perhaps, only in the church building, and of the later Gothic revival, and in the dwelling-house in England of to-day, that we see anything approaching a "national" style. I am profoundly convinced that if we wish to regain and preserve a national manner and method, as distinct from the impossible ideal of a new invention, our hope is to take up the threads of real art *where they were dropped* in Ireland, and let us see what will come of a natural process of development.

The first step in this direction is the study of the work that lies nearest to our hand, and produced by generations whose habits and ideals approximated more nearly to those of our own times. Of course, in church work, "to pick up the threads" we must go further back, and what better starting point could we have than such remains as Holy Cross, Mellifont, and such like?

I believe a general measurement of old buildings in Dublin would be valuable practice and training for eye and hand of the student, and the movement would, I am sure, help to create an improved general standard of taste amongst the public in Dublin, where it is at present, unfortunately, not very high in matters architectural.

Home Materials.

I feel I should not end without referring to the noticeable revival of Irish feeling and sentiment in regard to manufactures, industries, and arts. Commenting upon Mr. Holloway's able and practical valedictory address, the *Leader* suggested that I, as his successor, should carry on his work by proposing a resolution pledging the members of this Association to use none but Irish materials wherever possible in their works. I need hardly say that if I thought it practicable or useful I would gladly propose such a resolution, but I have no desire to dictate to my professional brethren and fellow-students, who are, I believe, keenly alive to the necessity for supporting Irish industries. A resolution, such as was indicated, would, I am afraid, savour of impertinence on my part. It is hardly necessary at this time of day to preach the lesson of home industries. We have admirable material to our hand, the finest of stone, excellent brick, terra-cotta, capital slates, a moderate supply of very good cement, and several other things. The country is no longer flooded with cheap and nasty foreign glass. Good stained glass is being made in Ireland. Quarries are to some extent being re-opened. At Galway, a fine granite industry is in full swing, while the grey granite of Newry, Castlewellsan, and the splendid limestones of Ireland are becoming, I think, more appreciated. Recently the new Fastnet Lighthouse, Co. Cork, was completed, £84,000 in cost, entirely composed of interlocking blocks of CORNISH granite. Where were our Irish granite merchants, and was it their fault that led to the employment of all that English stone, when Irish granite, of superior quality, might have been used; or was it because they were too unbusinesslike to avail themselves of the chance? I think that that is a question to which the answer would be rather interesting. Again, in the new College of Science it is proposed to use Portland stone, at first to a large extent, but now, by a compromise, to the extent of one-fifth of the whole stone work, I understand. There is really no need for this; no more need than there was to employ an English architect. Of course we all know Sir Aston Webb will give us a fine design, and we welcome those Englishmen who make their home amongst us;

but, apart from the commercial aspect, it is not right or fair that Irish architects should not have an opportunity of beautifying the capital of their native country, and employing the native materials, if it were only as an object lesson.

If you want to see what can be done in Irish granite, the fine capitals of St. Paul's Roman Catholic Church, Arran Quay, and that graceful and ornate front to the Kingsbridge Station, are both excellent examples of what can be done in this way, and, of course, it is the bounden duty of Irish architects in any movement for the material betterment of the country to do their part by supporting the native industries and materials wherever they can, but extravagance of language, such as we recently had about the use of concrete, will only do far more harm than good. Likewise we should determinedly set our face against any attempts to give a political tinge to so excellent a movement. It requires and ought to command the sympathy and aid of all Irishmen.



OUR NORTHERN LETTER.

(FROM OUR CORRESPONDENT).

Ulster School of Arts and Crafts.

Under the above modest title, several capable and practical craftsmen propose to meet a long-felt want in the North of Ireland, where art, both pure and applied, flourishes with no great encouragement, and it is to be hoped that their action will achieve the success it deserves. The School of Art did good work in its day, and continues to do it, if somewhat under the overshadowing of technical instruction, into whose care it has passed. However capable the teachers of a municipal art school may be, they have to serve little imaginative, and almost wholly utilitarian, masters, and so cannot give full expression to their individualities. And, in art, it is the individuality that counts. So the Ulster School of Arts and Crafts has a province to fulfil—and fill. It is under the direction of the following teachers, viz.: Mr. J. Hunter Jeffrey, A.R.C.A. (Lond.), Gold Medalist, Nation Art Competition, London; Mr. Charles Braithwaite, ex-National Scholar, R.C.A. (Lond.), Member of the Society of Calligraphers (who have studied at the Royal College of Art, London, and specialised in Art, Craft Work, and Design under Professor W. R. Lethaby, Director for Art to the London County Council, and Principal, Regent Street School of Arts and Crafts; under Mr. George Jack, for Wood-carving and Gesso; Mr. Edward Johnston, for Lettering, Writing, and Illuminating; Mr. Christopher Whall, for Stained and Leaded Glass; Mrs. Christie, for Tapestry, Weaving, and Embroidery, and Mr. Joseph M. Doran, Member of the Art and Crafts Society, London); Mr. Jackson G. Smyth, Queen's Prizeman, Architecture, and Mr. Tom Drummond. Mr. J. G. Smyth served his articles with Mr. T. Pentland, Architect, Belfast; was, later, with Mr. Vincent Craig, F.R.I.B.A., Belfast, and, subsequently, put in several years with one of the leading firms of architects in London. He, also, for a winter or two, held students' classes under the auspices of the Ulster Society of Architects. From the above list of qualifications it will be seen that the Ulster School of Arts and Crafts does not aim at guiding amateurs in the covering of canvas or the spoiling of good paper, but proposes to supply a training-place for the worker whose object is to live by the practice and application of art. And, what its directors have done successfully for themselves, they can do, there is every reason to hope, for others. Particularly in the teaching of architecture will its advent be appreciated, for hitherto in the North of Ireland the architectural student could obtain no instruction outside of the office where he served articles. The address of the School is 7 Chichester Street, Belfast, about twenty yards from the one square in Belfast dominated by architectural beauty—the City Hall Square. And the fees of the School are characterised by moderation.

Stained Glass.

A very beautiful stained glass window, erected by Miss Neill in memory of her sister, Miss Emma Neill, and situate in the southern transept of St. John's (Episcopal) Church, Malone, Belfast, has been dedicated by the Lord Bishop of Clogher. It is in two compartments, and has for subject the raising of Lazarus. It was executed by Messrs. Ward and Partners, May Street, Belfast, from the designs, cartooning, and superintendence of Mr. W. J. Douglas, their chief designer, and, like all Mr. Douglas' work, is characterised by richness and refinement.

Ulster Society of Architects.

The October general meeting of the Ulster Society of Architects was held in the rooms of the Society, Lombard Street, Belfast, on the 28th October, at 8 p.m. The President (Mr. J. J. Mc'Donnell, J.P.), occupied the chair, and

there was a large attendance. The minutes having been read and confirmed, correspondence with Committees of the Belfast Corporation, relative to the employment of architects in municipal building work, was read. After discussion, the Council were directed to take action, by Sub-Committee, in conjunction with the Master Builders' Association, and such other bodies as might be desirable, to see that a resolution, some time ago adopted by the Corporation, was enforced—which resolution directed Committees of the Corporation to employ outside architects for all important building work carried out by the Corporation instead of through the Surveyor's staff. So far the experience has been that, when such work is carried out by the Surveyor's Department, it has been both unsightly as to design and extravagantly dear as to cost. The next large building likely to be initiated by the Corporation is a public abattoir. The Surveyor's staff have already got out designs for this, and, apparently, to discount criticism, are having these puffed in various papers and quarters. (It will be noted from a report of the Market Committee, which appears in our Building News column, that a motion to invite competitive plans was defeated by six votes to two). The next business before the Society was the action of a member in accepting employment, under the Labourers Acts, for a Rural District Council, at two per cent. The scale of fees laid down by the Ulster Society is—(a) Three and a-half per cent. on expenditure, plus travelling expenses; or, (b) four per cent., including travelling expenses, together with three guineas per day for attending Local Government Board enquiries, etc., and £1 1s. 0d. for each site map prepared. This means, of course, that no member of the Society can act as architect under the Labourers Acts. Already one member of the Society, not complying with these terms, has resigned under suspension. The Society has drawn the attention of the Institute of Architects of Ireland to the conduct of the member now offending, and the Council of this body has replied that as the Institute had laid down no scale of fees for employment under the Labourers Acts, the member in question, who is also a member of the Institute, had committed no offence in regard to it. The Council of the Ulster Society were directed to express their surprise that the Council of the Institute should, by tacit sanction of a two per cent. fee, render ridiculous its action in endeavouring to procure from the Local Government Board recognition of the inadequacy of the scale of fees laid down by that Board. A letter was read from the Urban District Council of Holywood, Co. Down, stating that in their recent appointment of a Town Surveyor, they had made it a condition that candidates should, if carrying on private architectural practice within the Urban District, submit their own designs to a competent independent architect for approval, and pay the fee of such architect, with a view to removal of the current belief that plans have little chance of being passed by an Urban District Surveyor unless prepared by himself—which, in reality is, unfortunately, too often the case. So the Holywood Council are much to be commended for their action, which is a step in the right direction. Certain other business concerning the Belfast Quantity Surveyors' Association, Students' Classes, etc., having been transacted, the meeting terminated.

Contracts Open or Pending.

The Urban District Council of Bangor, Co. Down, invite tenders for laying a line of 12-in. pipes from the District Boundary on Belfast Road to Abbey Street, a distance of about 630 lineal yards. Tenders to be framed—Firstly, the contractor to execute all work and supply all pipes, ironwork, and other materials; secondly, contractor to execute all work other than supply pipes, etc.; thirdly, ironfounders to supply and deliver all pipes, ironwork, etc. Plans, etc., to be seen at office of Town Clerk, and tenders to be lodged not later than noon, 5th November.

The Committee of All Souls' (Unitarian) Church, Elmwood Avenue, Belfast, have approved sketch plans by Mr. W. J. Gilliland, F.R.I.B.A., 9 Howard Street, Belfast, for the erection of new Lecture Hall and Committee Rooms, at an approximate expenditure of £1,500. Contract drawings are being prepared, and will soon be ready for tendering.

Contract Accepted.

A new villa residence, costing about £3,000, for F. L. Heyn, Esq., has been given to Messrs. H. and J. Martin, Belfast and Dublin, for erection at Cultra, Co. Down. Mr. H. Seaver, B.E., Belfast, is architect.

Foundation Stones.

Foundation stones of a new Episcopal Church, in connection with the parish of Templecorran, Kilroot and Islandmagee, are being erected at Whitehead, County Antrim. Mr. W. D. R. Taggart, Belfast, is architect, and Mr. James Kidd, Antrim Road, Belfast, is builder. Cut

stonework is being supplied by Mr. Thomas Blayney, Middlepath Street, Belfast. This is a church which was put out for architectural competition, but, the conditions being unsatisfactory from a professional view, was tabooed by the Ulster Society of Architects—of which body Mr. Taggart is, of course, not a member. The estimated cost of erection is £3,000.

Foundation stones of a new school building, to be erected at Moneyrea in memory of the late Rev. Richard Lytle, were laid on the 21st October. The expenditure will be £800. Messrs. Hobart and Heron, Belfast, are architects, and Mr. Alexander M'Roberts, Saintfield, Co. Down, builder.

Sewerage Scheme.

The Local Government Board have sanctioned a loan of £2,150 for the purpose of providing a sewerage scheme, plumbing work, and sanitary annexes for the Workhouse at Lurgan, Co. Down, of which Mr. J. Finlay Peddie, C.E., Belfast, is engineer.

Labourers' Cottages.

The Castlereagh Rural District Council have approved a scheme for the erection of twenty-two cottages, at a cost of £3,946.

The Downpatrick Rural District Council are advertising for tenders for the erection of 112 cottages, in accordance with the Local Government Board's model plans "A" and "D."

The Local Government Board has approved a scheme, by the Banbridge Rural District Council, for the erection of labourers' cottages at £200, pointing out, however, that cottages had been erected in the Newtownards Union (Co. Down) at £133 5s. 8d. each, and in Newry No. 2 District at £130 5s. 3d. each, and that their sanctioning an expenditure of £200 was not to be regarded as a precedent.

THE NEW LONDON COUNTY HALL COMPETITION.

The following statement has been received by the Royal Institute of British Architects from the London County Council:—

The London County Council has received from Mr. Norman Shaw, R.A., and Mr. W. E. Riley [F.], the two Assessors appointed to act for it in connection with the competition for designs for the new County Hall, their report on the result of the preliminary stage of the competition.

The Assessors state that there were sent in 99 designs, the work of 152 architects, some of whom worked independently and others in collaboration. Of these architects eight were of foreign birth. To illustrate the designs 1,199 drawings were submitted.

The duties of the Assessors were to select not less than ten and not more than fifteen designs with a view to the authors thereof competing, with the eight architects already selected by the Council, in the final stage of the competition.

There was no doubt in the minds of the Assessors that the maximum number (15) of designs required could be found among those sent in. The names of the fifteen authors of designs selected by the Assessors are:—Mr. R. F. Atkinson [F.], Mr. H. J. Blanc [F.], R.S.A.; Mr. G. Washington Browne, Mr. T. Davidson [A.], Mr. M. J. Dawson [A.], Mr. J. B. Fulton [A.], Messrs. Gardner and Hill, Mr. W. Haywood, Messrs. Houston and Horne, Messrs. Jemmett and McCombie, Mr. R. Knott, Messrs. A. Marshall Mackenzie [F.], A.R.S.A. and Son; Messrs. Russell and Cooper [F.F.], Messrs. Warwick and Hall [A.A.], Messrs. Clyde Young and E. W. Poley [A.A.].

The names of the eight architects selected by the Council are:—Mr. J. Belcher, A.R.A., Past President, R.I.B.A.; Mr. Wm. Flockhart [F.], Mr. Ernest George [F.], Mr. Henry T. Hare [F.], Mr. T. G. Jackson, R.A.; Mr. E. L. Lutyens [F.], Mr. E. W. Mountford [F.], Messrs. Nicholson and Corlette (Sir Charles Nicholson, Bart., M.A. [F.], and Mr. H. C. Corlette [F.]).

Other architects of distinction were asked by the Council whether they were willing to compete, but they were unable to accept the invitation.

The committee dealing with the matter desire in the name of the Council to thank all the competitors for the response made to the Council's invitation, and for the great amount of work and thought which has been expended in maturing the designs submitted.

Several competitors have written asking for explanations of the rejection of their designs. To do this would practically necessitate a report from the Assessors on each design, and no such departure from the ordinary course as the requests imply can be made.

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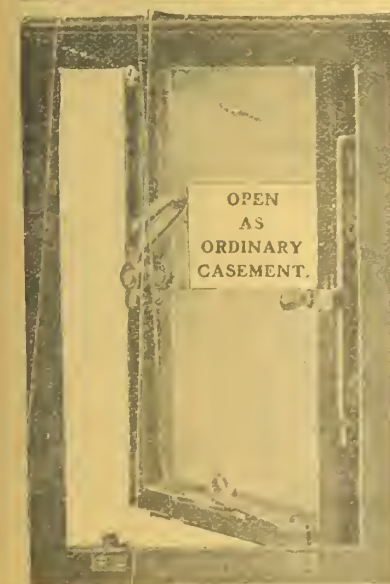
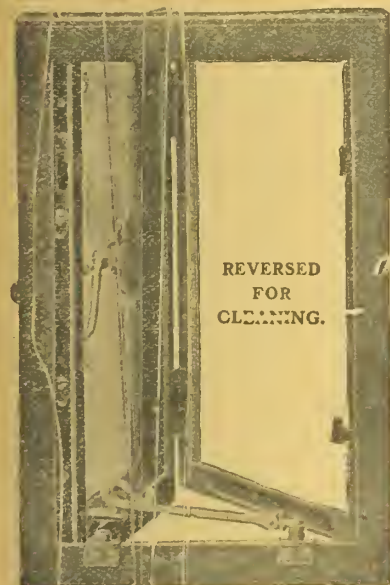
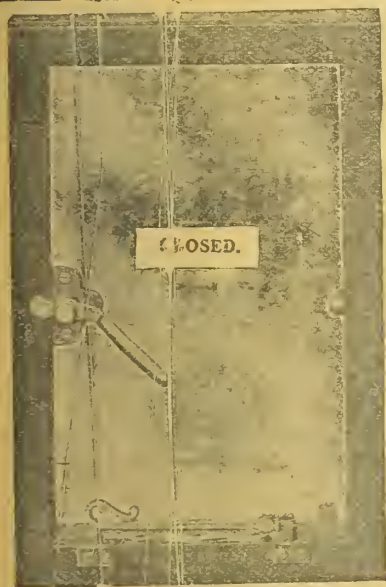
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CONTENTS.

	PAGE
Topical Touches	745
The Architectural Association of Ireland—Opening Meeting	746
Our Northern Letter	752
The New London County Hall Competition	754
LEADING ARTICLE:—	
The Public and Architecture	756
COMMENTS:—	
Italian Architecture	758
Building News	761
Batley's New Free Library	762
The Hennebique Tower at Trim	762
The Society of Architects (London)	762
Early Irish Ornament	762
Engineering Items	765
Correspondence	766
Death of Mr. G. F. Bodley, R.A., D.C.L., F.R.S.	766
Our Illustrations—New Technical Institute, Belfast	768
An Architect and His Fees	769
Queensland Timbers	769
Engineering News	770
Imports	770

THE PUBLIC AND ARCHITECTURE.

In the current number of the *Journal* of the Royal Institute of British Architects, there appears an interesting article under the heading, "The Public and Architecture." This is a very old and almost threadbare subject, but somehow or other it is one which from time to time comes up afresh to challenge our attention. Primarily, "The Public" requires only "building" pure and simple, as distinct from "architecture," to supply its needs of shelter; ornament or proportion is regarded by the man in the street as something super-added, because of some special reason; in a church, for instance, as an offering to the Creator, and this is, perhaps, in modern times, almost the only circumstance under which ordinarily ornate building, and an effort to give true architectural character, are found employed in a purely disinterested form. Of course there are many exceptions showing a purely disinterested spirit. The bulk of architects, for instance, try to put their best into their work, but the average building is made ornate, if it is a business premises, with a view to attracting attention and trade, and in domestic dwellings very often form a love of ostentation. In most cases, indeed, one might even include churches, there is some secondary motive other than a pure love of Art, such as was productive of the masterpieces of Greece and Rome, and the middle ages—even Romans were infected by the modern spirit of display. Of course in all periods, our own included, we had genuine efforts, not merely by designers, but by the patrons themselves, to produce something good for the sake of Art itself. But speaking broadly and roughly, it is a long time since the public as a whole has interested itself directly in architecture without some ulterior motive, commercial or ostentatious. The public is not in touch with architecture. Whether it is architects who most influence the public and set the standard of taste, or whether that the public taste produces the talented architect, we know not. Only this is apparent—that the public does not possess any intelligent knowledge or appreciation of architecture. It has been often suggested that by educating public taste we should produce a better appreciation of, and desire for good architecture, and a desire for it at all times, and there is no doubt but that is

so. All architects will desire to see such an improvement but how is it to be brought about? Numerous suggestions have been made. One of the chief is that architects should educate the public taste, but the means by which that desirable end is to be accomplished has never been very accurately defined. Lectures have been suggested, but we fear it would take a great many lectures to educate the taste of a whole nation, even if people could be got to come and listen.

The writer of the article in the *Journal* considers some points bearing on this subject. It is recalled that at the International Congress of Architects in London last year, that various means were suggested for interesting the public, of rendering them alive to the importance of having beautiful buildings in their midst, and of inculcating in the rising generation some understanding of what architecture is.

A Paper contributed by some Spanish members of the Congress recommended the compulsory provision in primary schools of photographs or drawings showing the best existing specimens of architecture, with indications of style and epoch; the inclusion of æsthetics and of the history and theory of the fine arts in the general curriculum of schools; instruction in elementary architecture in schools of every kind; the establishment and endowment of chairs of architecture, and cheap excursions to notable buildings under the guidance of an architect who would lecture on the monuments visited.

There can be no doubt but that much good might be done in this way, and if architecture is really the mother of all arts, then a critical knowledge and appreciation of it would certainly involve improved taste in many other matters. The writer in the *Journal* suggests that the Press might become a powerful auxiliary in awakening the interest of the public, and advocates occasional criticism of architectural works in the Daily Press by a competent architect writer.

How often we see architectural reports, or so called critiques of architecture, in the daily press, obviously the work of those unacquainted with even the elements of the subject. Safety is generally sought by such writers, in according praise, varying in degree from slight, almost damning, to fulsome. The writer of the article points out that interest is, in comparison, lavished on the painter, the sculptor, the musician, and the man of letters, interest that might with advantage be extended to the architect. Of course the architect occasionally enjoys the patronage and appreciation of a cultured personality, and indeed it is impossible to overrate the advantages to architecture from a literary standpoint of the appreciation of some cultured amateur's work. Very often their writings are superior in interest to those of the professional because less "cut and dried." The *Journal* quotes the observation of Professor Aitchison, R.O., who in one of his felicitous Presidential addresses at the Institute, insists that concern for the architecture of one's country is a patriotic duty.

The poetry, he says, the eloquence, and the music of the past become the cherished possessions of all civilised nations. The statues, the bas-reliefs, the engraved gems, the coins, the plate, and the jewellery are spread over the civilised world. The architectural monuments alone point out the places where the great life of the nation once throbbed, and enable us to penetrate the thoughts that created them and to see the skilled handiwork of the people. . . . It is only by the people cultivating a knowledge of architecture, and so appreciating its beauties and emotional qualities, that a love for its masterpieces can be engendered and the architect rewarded; for the architect's principal reward is the enthusiasm and gratitude his works excite.

Referring to a recent article in the Daily Press the writer says:—

It is a hopeful sign of the times and an encouragement to the rising generation of architects to read in the *Spectator* of a fortnight ago the admirable article entitled "Civic Pride." The inspiring theme was the possibilities that may result from the new scheme of historical teaching which is to be introduced into primary schools in London. The idea is to take the history of our great Metropolis as a whole, and to demonstrate the development of civic institutions and the place London holds in the history of the country. The *Spectator* makes it apparent that the average Londoner has lost all sense of civic pride, and that he compares most unfavourably in this regard with the provincial townsman. If Londoners

were familiar with the greatness of their past, they would simultaneously understand the greatness of the responsibility it imposes upon them.

He goes on to instance the recent movement for the preservation of Crosby Hall in London, and what is true of London in this respect is true also of our own metropolis in connection with most other cities.

Says the writer :—

The *Spectator* instances a few points which might be crammed home in the process of cultivating in our children the virtue of civic pride. Concern for the appearance of London would be only one of several of its aspects. "Children should be told that, whatever London used to be, it is no longer an ugly place. Paris is beautiful for the arrangement of its vast spaces, but its public buildings do not match those of London. London grows in beauty yearly. This is a great building age, and our young architects are fast removing the blots upon their profession. Town children are often taught what they may observe in the country—where they seldom go—but if the faculty of observation be encouraged among the objects of a town, it will work automatically afterwards in all places and at all times. It can be encouraged first only on things which are continually before the eyes. Thus the buildings of London might become for the child an epitome of history. The child would be an exception to the present rule, and would go sight-seeing in his own city. He would learn the greatness of Wren; he would trace in old terraces the work of influence of the brothers Adam; he would learn that the Savoy is not only the name of a hotel and a theatre; he would appreciate the antiquarian learning of Mr. Gomme which evolved the splendidly apt names Kingsway and Aldwych, and made all other suggestions look foolish; he would have an eye capable of seeing the beauty of New Scotland Yard." Here is something to hope for. When the dream of the *Spectator* is realised, we shall have moved on a pace.

The want of general public interest in the success or otherwise of the immense number of public buildings of the first importance that have been erected in London during the past decade is most remarkable. The non-success of modern great Government Office buildings is almost proverbial. None of the great state buildings built subsequent to the Houses of Parliament rise above the level of respectable mediocrity—the Houses of Parliament, the Palace of Westminster, standing in solitary contrasting splendour and dignity; and the general public seems perfectly satisfied.

How a better and more critical public taste could be formed and maintained, is so involved as to be apparently almost insoluble. Pugin and other leaders of the Gothic revival, aroused the interest of a limited class in a particular class of architecture, and of course Ruskin and every other writer of eminence attracted a school of disciples, but the influence does not appear to have been either general or substantially permanent.

COMMENTS.

Italian Architecture.

In the *Irish Times* of Wednesday last appears the following letter from Mr. William Butler, surveyor :—

SIR, Your reviewer, who hits Mr. Bumpus so hard on the subject of Italian architecture, is, I respectfully submit, not justified in condemning that gentleman, who alludes to the Cathedral of Sta. Maria dei Fiori as "a failure." Nor do I think Mr. Bumpus could be expected to hold any other opinion—if he is to be at all regarded as a competent judge of architecture—than that Italian Gothic architecture is "unassailably" inferior to Northern Gothic.

A much more eminent person than Mr. Bumpus—namely, Sir James Fergusson, author of "A History of Architecture in all Countries"—believed that the Italians never rose to the conception of such buildings as the great Rhenish Cathedrals, like those of Spire and Worms, or the old churches at Cologne. The Italians, he says, never grasped the true principles of Gothic art, and the fatal facility of the pointed arch led them more astray after mechanical cleverness than even the Germans. "It is a style copied without understanding, and executed without feeling."

As to the Cathedral at Florence, your reviewer says: "To find the Cathedral of Florence, for example, patronisingly alluded to as 'a failure' does not impress one with a sense of the high qualifications of the speaker for the task entrusted to him."

Be that as it may, Fergusson appears to agree with Mr. Bumpus. After describing the vast nave which leads to an enormous dome, extending into the triapsal arrangement, and the unrivalled general effect as we approach the sanctuary, Fergusson goes on to say:—All this, alas! is utterly thrown away in the execution. The details are positively ugly. The windows of the side aisles are small and misplaced, those of the clerestory mere circular holes. The proportion of the aisles one to another is bad, the vaults ill-formed, and altogether a colder and less effective design was not produced in the middle ages." The same writer says of the dome, which was designed by Brunelleschi, after the death of Arnolfo, the original architect, that it acts like an extinguisher, crushing all the lower part of the composition, and both internally and externally destroying all harmony between the parts.

Ruskin disposes of the matter in a sentence in his "Mornings at Florence," where he says:—"The most studious ingenuity could not produce a design for the interior of a building which could more completely hide its extent, and throw away every common advantage of its magnitude, than this of the Duomo of Florence."

If the judgment of Mr. Bumpus be bad, he surely errs in good company.—Yours, etc.,

WILLIAM BUTLER.

58 Mountjoy Square, Dublin.

The foregoing letter has reference to a very severe criticism of Mr. Bumpus' book that appeared in the *Irish Times* a few days ago. We ourselves, a few weeks previously, had reviewed the work in the most favourable terms, having formed an excellent opinion of its merits. The book is not, and does not profess to be, the work of an architect; it does not claim to be a professional text-book of Italian architecture, and, therefore, it must be judged on its merits as the work of a very cultured non-professional writer, giving in an extremely pleasant and discursive fashion the impressions of his tour. To us it appeared to read more easily and agreeably than the majority of architectural books one comes across. Possibly, as we observed in our review, it was because Mr. Bumpus was not an architect that this was so, and it is not so remarkable, when we consider how much the literature of architecture has been enriched by the work of cultured amateurs, if one may so describe one so intimately acquainted with architecture as Mr. Bumpus. James Fergusson, who is quoted by Mr. Butler, was not himself an architect, and he wrote the best history of architecture extant.

The criticisms of Mr. Bumpus are, we believe, fully justified. There can be no comparison between the pointed architecture of France or England. Pointed architecture never really flourished in Italy. It was always an exotic, never taking firm root in the soil or in the affections of the people. Even George Edmund Street, bigoted "Goth" as he was, in his "Brick and Marble Architecture of Northern Italy," did not hesitate to criticise. Italy's Gothic work has obviously much foreign influence apparent; Milan Cathedral shows unquestionable German influence.

Mr. Bumpus is also criticised for the list of pictures given at the end of his work, but this is simply a list of the principal pictures described or alluded to, not a general list.

Lurgan.—At the bi-monthly meeting of the Town Council, it appeared from the minutes of a special committee meeting of the whole Council, that on a recent visit to the water-works station the permanent Waterworks Committee found matters so very unsatisfactory that they unanimously recommended that the resignation of the engineer in charge be called for. It was agreed to suspend the engineer pending the bi-monthly meeting of the Council. The chairman explained that the Clerk had since written the engineer in charge asking him to tender his resignation, and the reply was a voluminous document throwing dirt on the Council and its officials.—Mr. White: Does he resign? The Chairman: No; he says he "takes it he is not discharged for incompetence, but for daring to resent the interference of men whose knowledge of machinery is elementary." It was agreed that the letter be marked "read." On the motion of the Chairman and Mr. Drennan, it was agreed to discharge the engineer, giving him a fortnight's wages in lieu of notice.



Anamoe.—The Board of Guardians of Rathdrum Union have received tenders for building a dispensary residence and dispensary for the Anamoe Dispensary district, at Anamoe, in accordance with plan and specification prepared by Mr. George T. Moore, C.E., 1 and 2 Foster Place, College Green, Dublin. The tender of Mr. P. F. Kinlan, Montrose, Greystones, Co. Wicklow (£1,558), was accepted.

Belfast.—The Market Committee of the Council met in the City Hall. The committee had under discussion the question of preparation of further plans for the proposed new abattoir. It was moved by Councillor M'Mordie, and seconded by Councillor M'Cammond—"That competitive plans for the erection of the proposed abattoir be invited by advertisement, and that prizes to the amount of £100 be awarded for the best designs submitted." The motion, on being put to the meeting, was defeated by 6 votes to 2. The surveyor intimated that he hoped soon to be in a position to submit the report asked for from him upon the modification of the plans prepared some time ago by the assistant-surveyor, and which are based upon the information obtained by the deputation appointed to inspect abattoirs in English, Scotch, and Continental cities.

Birr.—Estimates are invited before the 15th inst. for alterations to Bank Premises, Birr, for the Hibernian Bank, Ltd. The plans and specification can be seen at the office of W. H. Byrne and Son, architects, 20 Suffolk Street, Dublin.

Boveedy (Co. Derry).—At a meeting of the trustees appointed to carry out the building of a school house, the chairman reported that he was unable to purchase a suitable site for proposed new school at the price offered by the trustees. A committee was appointed to interview the owner of the property at Boveedy cross-roads, and, if possible to purchase a site, and report to next meeting.

Bray.—At the meeting of the Urban Council on Monday last, the Council considered tenders for the erection of 39 workmen's cottages at Purcell's Field. A resolution was adopted giving to Mr. Frazer the contract at £4,090 of building the 39 houses in brick and to Mr. Mosley that of constructing the roads, footpaths, etc., at £706, the remaining portion of the work to readvertised. It was decided to advertise for a clerk of works in connection with the undertaking, applications to be considered at next meeting.

The District Council will, on the 5th inst., consider tenders for 1,000 tons whinstone, quartz, and limestone, broken to 2-inch gauge, and equal to a sample to be supplied; and alternative tender for a similar quantity unbroken, 70 sample, to be submitted also; 300 tons whinstone chippings or coarse tailings, to sample, 1-inch gauge; 50 tons fine tailings for paths, to sample.

Mr. J. C. Wilmot, M.R.I.A.I., is at present preparing plans for new stabling and farm buildings for Mr. W. H. Odum, Ardmore, Bray. Mr. Wilmot has also been instructed to prepare plans for new Carnegie Library, Bray, at a cost of about £3,000.

Ballindine.—Lord Oranmore and Browne, Castle McGarrett, Claremorris, has given a site for a new school for Ballindine, and proposes to hand over the existing school to the people to convert it into a hall for their own enjoyment. It is expected building operations will commence early in the new year.

Cashel.—The Representative Church Body require an architect for the district comprising the dioceses of (a) Cashel, Emly, Waterford, and Lismore; (b) Cork, Cloyne, and Ross; (c) Limerick, Ardfer, and Aghadoe; salary £300 per annum. Applications, with copies of testimonials, to be lodged on or before November 5th. The appointment will be made at the meeting of the Representative Body on the 20th of November.

Coolaney.—The West of Ireland Brick and Tile Co., which was incorporated on September 16th, have started operations on their brickfields, near Coolaney. At present a large staff is putting in the foundations for a large patent drier, to be heated by steam, and allows bricks to be dried throughout the year. The clay is exceptionally good, and the company expect to be supplying Sligo and district with

excellent bricks by the end of November. Machinery is also being put down for the manufacture of floor tiles and drainage pipes.

Cooldorrihy (Co. Cork).—An announcement has been made to the effect that Mrs. Harding, of Carrigboy, had signified her intention of defraying the cost of providing and erecting a new altar in Cooldorrihy Church. A meeting of the parishioners was held to consider the enlargement of the church, and the unanimous opinion was that extension, was essential and desirable to meet the requirements of the congregation. A provisional committee was appointed to undertake the project of extension, and a few were delegated to secure plans and estimates of the proposed structural improvements.

Drogheda.—New Altar in St. Augustine's Church.—The new altar, which is in course of completion in the Augustinian Church, is 30 feet high by 18 feet wide, approached by marble steps—indeed, the altar is entirely of marble, pure Sicilian—of the strictly Gothic style of architecture. Above the tabernacle is sculptured the form of a dove, and on each side of the tabernacle there are twisted columns, gracefully carved, while intermediate'y there are artistic panels on which are sculptured figures of the wheat and vine. A diaper panel on either side of the tabernacle is also a masterpiece of sculpture. All the pillars at the reredos are of Irish material; in striking contrast to the pure white marble are the pillars of green polished Connemara marble, which are the supports of the principal canopies; the reredos itself is supported by pretty pink marble polished pillars, which also stand out in welcome relief. The door of the tabernacle is of gold gilt, in two leaves. There are two niches on either side of the altar, embossed with carved capitals, and in which are placed two statues, those of St. Augustine and St. Monica, patrons of the church. The statues are of Carrara marble. Underneath the table of the altar (which is also of Sicilian marble) is an impressive centre group, "The Adoration of the Host"—a beautifully carved figure of two adoring angels. The panels at each side are carved with the Passion Flower and Crown of Thorns on one side, and on the other the Sacred Heart and the Passion Flower. The table of the altar, too, is supported by clustered coloured pillars of Middleton (pink) polished marble. In addition to the tapering central spire, a solid white Sicilian pinnacle surmounted by carved rockets and beautifully arched, there are four other pinnacles, two on each side of the main spiral structure, which are of the same design, all embossed and carved, and supported by Irish marble pillars. Mr. A. Scott, Mountjoy Square, was the architect. The altar was erected by Messrs. Early and Co., sculptors, Camden Street, Dublin, who also supplied the materials. There are pretty miniature Celtic crosses surmounting the side canopies. In addition to the new altar, it will be necessary to embellish the precincts, which involve the expenditure of £300.

Dublin.—The Rathdown No. 1 District Council will on the 6th inst., consider tenders for the building in masonry of a boundary wall to the field at Dean's Grange, where a number of labourers' cottages have been built.

At the annual meeting of the Joint Synods of Dublin, Glendalough, and Kildare, held in the Synod Hall, Christ Church Place, Rev. E. H. Lewis-Crosby, B.D., moved:—"That this Synod requests the Diocesan Board of Education to take cognizance of the great need on the North side of Dublin for a girls' school similar to that which in Adelaide Road is doing such an admirable work for the south side, and to take such steps as may be possible to procure the establishment of such a school." Rev. E. T. Crozier seconded the resolution. After some discussion, the President suggested that the resolution might be amended by striking out the words following south side, and substituting therefor the following:—"And that a committee, consisting of the Incumbent with a representative layman from each parish, nominated by the Incumbent, be appointed to consider the matter, and report to the Diocesan Board of Education." Rev. Lewis-Crosby accepted this suggestion, and the resolution, as so amended, was adopted.

The following tenders were received in connection with the building of fifteen cottages for the Merchants' Warehousing Co., according to plans and specification of Mr. F. W. Higginbotham:—J. P. Pile, Ltd., £3,390; Farmer Bros., £2,855; Thompson Bros., £2,580; Whelan Bros., £2,250. Messrs. Whelan's tender was accepted.

Messrs. Lowry, Percy and Co., Earl Street, Belfast, are at present building at Amiens Street Station, for the Great Northern Railway, new general waiting-rooms, ladies' waiting-rooms, lavatories, and sanitary block for the staff; also new audit office over waiting-rooms, according to plans and specifications by the resident engineer. Messrs. Lowry and Percy are

also carrying out extensions and renovations at the Docks, Belfast, for the New Northern Milling Co.

The contract for extensions and additions to the Royal Veterinary College, Ballsbridge, has been secured by Mr. C. J. Crampton, Hammersmith Works. The plans are by Mr. L. A. McDonnell, M.R.I.A.I.

Mr. J. P. Pile, Great Brunswick Street, is carrying out renovations and improvements at Sackville Street Hall.

The statue to H.M. the late Queen Victoria is at present in course of erection outside the Kildare Street Museum. We understand a French firm is carrying out the work.

Mr. James Beckett is at present building new stores for Messrs. Cantrell and Cochrane, at Nassau Place.

Enniscorthy.—The Urban Technical Instruction Committee are prepared to pay £15 for plans, estimate of specification, for reconstructing Market House building and adding another storey thereto. The building is to be used for Technical Instruction Schools and offices of Urban Council.

Galway.—New Galway Church.—In Kilbeacanty parish, Gort, Co. Galway, the Most Rev. Dr. McCormack, Lord Bishop of Galway, dedicated the new church to St. Fechin, the patron saint of the parish. The church has been rebuilt within the past eighteen months. The architects are Messrs. Scott and Co., Dublin, and the builders are Messrs. Connolly and Tarpey, Ardahan; Messrs. Campbell Brothers supplied the leaded lights, and the fibrous plaster work was contracted for and carried out by Mr. John Ryan, Abbey Street, Dublin.

Kilkenny.—The designs for the new free library at Kilkenny have been prepared by Messrs. Lowey, Stewart and Co., 62 Dame Street, Dublin, who are associated with Messrs. Tyan and Jago.

Limerick.—A movement is on foot to erect a memorial to the late Bishop of Limerick, Dr. Bunbury. Already a considerable sum has been received or promised.

New Ross.—At a recent meeting of the New Ross Urban Council, Mr. Fanning was referring to the "scandalous neglect of the Council" in failing to put a footpath down in William Street and to the houses being undermined with dripping water, when the Chairman said they had received a letter from the Local Government Board asking what steps the Council had taken to comply with Section 7 of the Towns Improvement Act requiring a town surveyor. It was ordered that the Council be notified to consider the matter at next meeting.

A serious fire broke out in New Ross on Monday night. The premises attacked consisted of an extensive timber yard, occupied by Messrs. M. Kelly and Co., which were burnt out, together with a flour and meal stores, a number of tenements, and the rear of the Town Hall. The flames spread to large bonded stores, containing spirits to the value of £20,000. The stores partially escaped, and most of the spirits were saved from destruction. The property of about a dozen firms was affected.

Quilty.—Mrs. P. Talty, Quilty, has offered £30 towards the erection of a chapel at Quilty, and Mr. and Mrs. D. Morrissey, N.T., Quilty, have offered £10 10s. for same purpose.

Rathmines.—The Rathmines and Pembroke Joint Hospital Board invite tenders for the erection of additional accommodation at the Vergemount Isolation Hospital, in accordance with plans and specifications prepared by Mr. Edwin Bradbury, M.R.I.A.I. Two tenders are to be sent in, one for the erection of the building in brick, and the other in iron. Bills of quantities can be had on application to Messrs. Beckett and Medcalfe, quantity surveyors, 10 Leinster Street. Tenders close on the 9th inst.

Tipperary.—Tenders have been received by the Ballinard Co-operative Dairy Society, Ltd., Ballinard, Shronell, Tipperary, for the building of a manager's residence. Mr. J. B. Kirby is the architect.

Templemore.—The new Church of the Sacred Heart, Templemore, is now completed, and was dedicated on Sunday last. The latest additions to this sacred structure, the new tower and spire, have given the finishing touches to the external completion of this work. The principal entrance, or western door, has clustered pillars at each side, and above stands a magnificent statue of the Sacred Heart. Four Gothic arches spring from the jamb pillars. The lower one, which is over the statue, is carved in tooth ornamentation, which gives a highly decorated finish to the façade of the church. The pendants at each side are sculptured mitred heads, representing Saints Albertus and Albens, the patron saints of Cashel and Emly respectively. The tympanum, deeply recessed, is of Portland stone, and on its surface are worked in high relief adoring angels on each side of the statue. The capitals are decorated in ball-flower design, surrounded by stiff leaved foliage. Stained glass windows have been set, and copied from some of the best efforts of the old Masters, and notable in the northern transept

window is a copy of "The Transfiguration," from Raphael's great picture. Messrs. Ashlin and Coleman are the architects.

Whitehead.—At Whitehead, the foundation stone of a new church in connection with the parish of Templecorran, Kilroot, and Islandmagee has been laid. The new church is situate in front of the present Parochial Hall. The design is of the late Gothic period, and the building is to be of squared blue stone in courses, the dressing and weatherings being of Ballycullen freestone. The church will be provided with three doors. The main entrance will be through the tower, situate in the north-west corner of the building, and the other two entrances will be in the transepts. There will be a tower, forty feet high, having two storeys, the upper one of which will contain the belfrey. The tower, being a square, will terminate in an octagonal spire, rising seventy-four feet above the ground. The internal columns and chancel arch will be of Ballycullen freestone, with moulded base and caps. The entrance porch and chancel will be laid with fancy tiles of special design, and all the aisles with woodblock flooring. The church has been designed to accommodate about four hundred people. Mr. James Kidd, Antrim Road, Belfast, is the builder and contractor, and Mr. W. D. R. Teggert, C.E., is the architect. Mr. Thomas Blayney, Middlepath Street, Belfast, supplying the cut-stone work.

BATLEY'S NEW FREE LIBRARY.

The new Free Library, which has been erected at Batley through the munificence of Mr. Andrew Carnegie, was opened recently by the Mayor. The library has been erected at a cost of £7,500, £1,500 having been subscribed by the Batley Corporation for the erection of a clock tower and the rest by Mr. Carnegie. The clock and chimes have been erected by Wm. Potts and Sons, Leeds and Newcastle, who have recently erected a number of clocks and chimes in Ireland, at Ballyshannon, Galway, and Cork, amongst other places.

THE HENNEBIQUE TOWER AT TRIM.

Messrs. J. and R. Thompson, Ltd., write us as follows:—"We notice in your last issue an inaccuracy regarding the Hennebique water tower at Trim. This is not the first of its kind in Ireland, as we have already erected one for the Department of Agriculture at Athenry, and we understand Messrs. McLaughlin and Harvey erected one of this class about Belfast."

THE SOCIETY OF ARCHITECTS (LONDON).

The officers and members of the council for the year 1907-8 are as follows:—President: R. F. Vallance, F.R.I.B.A., Mansfield. Vice-Presidents: G. E. Bond, Rochester; G. A. T. Middleton, A.R.I.B.A., London. Hon. Secretary: Ellis Marsland, London. Hon. Treasurer: B. R. Tucker, London. Hon. Librarian: R. G. Bare, London. Council: Henry Adams, M.Inst.C.E., London; James Bartlett, London; F. W. Chancellor, F.R.I.B.A., Chelmsford; J. B. Corby, F.S.I., Stamford; T. W. Cotman, Ipswich; H. V. Milnes Emerson, London; H. E. Hawker, F.S.I., Bourne-mouth; Chilton James, F.R.I.B.A., Cardiff; W. J. Jennings, J.P., F.S.I., Canterbury; Col. F. S. Leslie, R.E., Woolwich; H. W. Matthews, Bath; C. H. Mead, London; E. J. Sadgrove, F.R.I.B.A., London; Anthony Scott, Dublin; W. Scott-Deakin, F.R.I.B.A., Shrewsbury; J. Fletcher Trew, Gloucester; T. F. Tickner, F.R.I.B.A., Coventry; Percy B. Tubbs, F.R.I.B.A., London.

EARLY IRISH ORNAMENT.

There are no Irish MSS., metalwork, or ornamented gravestones which can be safely and certainly dated earlier than 700. On the other hand, the Lindisfarne Gospels, the most ancient illuminated MS. with a really reliable date in which the so-called Celtic ornament appears, has miniatures in which the hair of the figures is curled in the Byzantine mode, while the names of the Evangelists are in Greek, with a few errors, and among the diaper patterns is one like the Roman geometrically-pierced transennæ.—Mr. F. Hamilton Jackson, R.B.A., Vice-President of the Society of Decorative Designers.

The following Unions have in hands schemes under the Labourers Acts:—Sligo Rural (£88,872), Londonderry No. 1 (£17,788), Wexford (£20,380), Manorhamilton (£31,660), Ballinrobe (£61,380), Londonderry No. 2 (£31,960). Inquiries into these schemes are being held by the Local Government Board.

ENGINEERING SECTION.

ITEMS.

We wonder was it in Ireland that a district councillor inspected some sewage sprinklers which had recently been installed, and, turning to the surveyor, remarked: "These sprinklers are not in working order; do you notice that some go on and then stop, and then start off again." The surveyor here explained that they were intermittent sprinklers. "I don't care," retorted the councillor, "whose they are, intermittent or any other firm's; if they don't work all the time I shall vote against paying for them."

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At the time of writing it appears that the intervention of the President of the Board of Trade into the railway dispute has not tranquillised the storm to any appreciable extent. Wisely, Mr. Lloyd George met the directors of the railway companies unofficially, and the results of the round table conference have not been published; possibly awaiting the upshot of the adjourned meeting. Meanwhile, two of the leading English railway companies have issued a clear statement of their intentions in the event of a strike being declared, and have placed the question of non-recognition of Mr. Bell and his supporters beyond doubt. Another drop in railway securities may be anticipated, and still further stagnation of business before a settlement is arrived at, but eventually we have every reason to believe it will be found that a more or less satisfactory arrangement will be come to, and that the evils of a strike will be averted. In any case, the strike will be but partial and half-hearted, and nowhere will support for strike methods be less keen than in Ireland.

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There are many portions of the Irish coast covered with sand dunes, the sand being remarkably fine and light, and subject to disturbance by even a moderate wind. The same conditions prevail at numerous seaside resorts in England, where greater inconvenience is felt by reason of the sand being blown into the streets, sewers, and dwelling-houses. Shrub planting is the usual method adopted for staying the nuisance, but the treacherous nature of the root-hold hinders the plants from becoming firmly fixed, and they are blown down and buried. According to *Public Works*, an experiment was tried on the Massachusetts Coast about twelve years ago to transplant beach-grass (*Ammophila arenaria*), which grew in the locality, and this proved effective to bind the loose sand sufficiently to enable the proper planting of the shrubs to be subsequently carried out. After further experiments with numerous varieties of shrubs it was discovered that the bayberry, which grows rapidly and forms a matted root, was most suitable; whilst three varieties of pines, the native pitch, the Scotch pine, and the Austrian pine, were best adapted for the climate, situation, and strong ocean breezes. It would be interesting if some similar experiments were tried in this country, for many miles of the eastern seaboard consist of stretches of sand, continually altering in conformation by the action of wind and water. Careful and thorough planting would go far to stay the erosion.

* * * *

The past week has witnessed some astounding revolutions in the scientific world, and their still more astonishing descriptions in the daily press. The inauguration of the Marconi transatlantic wireless service has been achieved, and while it still remains uncertain whether the scheme will be commercially successful, the special correspondents have been enabled to wire such descriptions of the installation and the methods of wireless telegraphy to their respective journals as to show that the age of miracles has not entirely passed away. Within a few hours the general public next heard that Mr. Edison had perfected the invention of an electric storage battery which "will bring motor cars within the reach of any man who can afford to own the house he lives in." Close on the heels of this discovery, which, we recollect, was announced in a similar manner five years ago, and which, so far, has not noticeably depreciated the cost of the motor car, comes the news that Mr. Edison had invented an entirely new system of house-building. By means of patent moulds it will be possible for any contractor to build a house of solid cement, twenty-five feet wide, forty-five deep, and three storeys in height, capable of housing three families, at a cost of £200. As our readers will expect, the most important feature of the patent lies in the *moulds*, which are of iron. Mr. Edison, however, modestly lays claim to the material, which is of "entirely new composition, consisting of one part of cement,

three parts of sand, and five parts of quarter-inch crushed stone." Mr. Edison notwithstanding, we seem to have previously heard of the use of a very similar material, even in these effete islands, and his modest assumption of its invention is either distinctly American, or else proves he is more at home as an electrician than as a building contractor. The liquid material is poured into the moulds from the top, and in twelve hours the house is complete; heating-pipes, staircases, casements (we assume these have patent hinges), floors and mantels all being of cement. To show that no detail has been overlooked, it is stated that the only part of the house not built of cement will be a strip of wood, around the ends of the floors, on which to tack down the carpets. It seems a pity that Mr. Edison did not substitute coke breeze for the crushed stone, as even the wood strips could then be omitted. The reports so far to hand do not detail the thickness of the cement walls, floors, and roofs, a matter of some practical importance in wet and changeable climates, and in a house occupied by three families. It is, therefore, impossible to criticise the revolutionary solution of the housing problem, but we must confess to an anxious desire to make the acquaintance of that cement casement.

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The differences which exist between engineers and architects in Great Britain, slight though they may be, are not apparently recognised in India, for recently an association of architects, civil engineers and surveyors has been formed in Bombay for mutual protection and consultation. And to those of us, whose flights of artistic imagination or scientific theorizing are so often trammelled by the prosaic clauses of the Buildings' Act, it may come as a matter of surprise that a resolution, passed at the first general meeting of the Bombay Association, was one respectfully requesting the Bombay Municipal Executive to refrain from passing the new building bye-laws until they have been examined by the Association. One is inclined to consider the Orient as the home of the artist and the theorist, where inspectors cease from troubling and hygienies are at rest. Such views are incorrect. There is probably no city where building operations are so closely watched as in Bombay. Before the smallest house can be erected, its plans must have been prepared by an engineer, *licensed by the local municipality*; these plans have to be sanctioned or criticised by the municipal executive engineer, the health officer, the drainage engineer, the house improvement branch (under the Epidemic Diseases Act), and sometimes by the municipal commissioner. During the construction, officials, representing each of these authorities, watch its erection, and finally the architect has to certify that all the materials used are good, and that no municipal regulation or requisition has been broken. If the building should stand on ground belonging to the Bombay Improvement Trust, further authorities have to be consulted, including the chairman and engineer of the trust, the trustees themselves, and occasionally the Government architect. It can be readily imagined how difficult it often becomes for an architect or engineer to reconcile the requirements of these various officials with the views of a client. It seems, however, that the municipal authorities are now busily engaged forging new powers for themselves, and, in an effort to hinder a further tightening of the chains, the Bombay Association will have the sympathy of kindred societies at home. Human nature being what it is, stringent supervision of plans and building, especially in cities, is undoubtedly essential; but experience in the United Kingdom goes to show that too severe a restriction defeats its own ends, engendering cunning and dishonesty, and proving disastrous to the proper expansion of the building trade.

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In a paper which Mr. James Rollins, junr., M.A.M. Soc. C.E., recently read before the Boston Society of Engineers, the author trenchantly criticised certain clauses which appear in far too many building contracts. The type of quantity surveyor who used to bill, "Item one, bay window; item one, staircase," is practically extinct, but those unfortunately remain amongst the engineering and architectural professions certain individuals who endeavour to guard themselves against loosely-drawn specifications and indifferent plans, by inserting in the contract that the contractor shall assume all responsibility for the work and for the stability of the structure. The details are designed by the engineer, the specification is supposed to describe materials and methods, and yet, when details and specification are strictly adhered to under the supervision of the engineer, the builder is expected, by his agreement, to guarantee the

excellence of the results. As Mr. Rollins cries in his picturesquely American language, "We must be idiots to sign any such contract. In a great measure we are idiots, but we have to run chances other than acts of God, etc., and there is one chance we rarely lose, that engineers are fair and honourable men in matters of this kind." The author later calls attention to the time and penalty clauses, in which he points out the unfairness of penalising a contractor for delay, while the other party to the contract may hinder the progress of the work in many ways, and cause the contractor serious loss, which the latter can only recover under exceptional circumstances capable of ready proof. So far, and also with regard to Mr. Rollins' condemnation of generalities in a specification, we are inclined to agree. The specification often used to-day is almost as much a mediæval relic as is legal phraseology. The modern conditions of building, the introduction of new materials, and the improved standard of general knowledge are insufficiently considered, and specifications are crammed with old meaningless clauses handed on from principal to pupil, generation after generation. And so used have contractors become to the "padding" and reiteration, that an abbreviated schedule of requirements is either looked on with suspicion, or as a means of circumventing the engineer, and assisting in the subsequent compilation of the bill of extras. The leading builders' and engineering societies might do worse than meet together and draft a skeleton specification, in which certain terms would be mutually accepted to bear a recognised interpretation, and in which those clauses, which now bear unjustly on either party, might be so altered that responsibility for plans, details, workmanship, materials, and subsequent results would be more clearly defined. Although such interpretation could not be legally binding, yet the results of the conference would undoubtedly be beneficial, and contractors would not so generally feel that the engineer is trying to have them both ways. And, as Mr. Rollins expresses himself, "every unnecessary or unfair clause in a specification has its part in limiting competition and in lowering the standard of honesty among contractors." With some degree of truth he might have added, "and of engineers."

CORRESPONDENCE.

British Education at the Franco-British Exhibition.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—Permit me, as Chairman of the Committee of the British Education Section of the Franco-British Exhibition, which is to be held in London next May, to direct the attention of all educational authorities, all educational institutions of every kind and grade, and all persons who take a real interest in our national education, to the paramount importance of this section, and the urgent need of active assistance being rendered to the Committee by all who have the cause of British education at heart.

There will be a French section of education side by side with the British, and strenuous efforts are being made by the French Committee to make their educational exhibits as perfect and full of interest as possible.

The object of my Committee is to present as full and complete a typical representation as they can of British education in all its grades, from the infant school to the university, and with all its varied phases, both general and special, and to make it of such a perfect and impressive character as shall display, from top to bottom, what is being done for the education and instruction, mental and physical, of the young people of this nation.

For this purpose we are seeking to organise exhibits, illustrations, and demonstrations of our national education, as well as of Science and Art teaching and Technical Instruction, and to collect the best examples of educational work and methods from all parts of the United Kingdom. If we are to succeed—and I have full confidence that we shall succeed—and if we are to make the Education Section not only worthy of the prominent position assigned to it in the Exhibition, but also an adequate representation of the genius and character of the British people, as displayed in their educational systems and institutions, and thereby to kindle a popular enthusiasm for education which will be of incalculable value to the nation, we shall need the help and co-operation of all educationalists.

For this co-operation and help I, on behalf of the Committee, confidently appeal.—Yours faithfully,

(Signed)

WILLIAM MATHER.

Kensington, October 10th, 1907.

P.S.—Full information with regard to the British Education Section will be gladly given to anyone who will apply for it to the Organising Secretary of this Section, Mr. G. R. B. Loch, at 56 Victoria Street, London, S.W.

OBITUARY.

Death of Mr. G. F. Bodley, R.A., D.C.L., F.S.A., etc.

On 21st ult. Mr. G. F. Bodley died. He was well known as one of the ablest and most accomplished of living architects. It is not too much to say that his death leaves a vacancy which cannot be filled. Mr. Bodley was chiefly identified with church architecture in England; yet, despite all the noble work he did, he never had the opportunity of leaving his impress upon a really great new church. Mr. Bodley was a pupil of Sir George Gilbert Scott, R.A., and their work has often been compared. Able a man as Scott was, his restorations were of a drastic character, his creations of an academic correctness, that more or less destroyed originality. Bodley, on the contrary, while possessed of a profound and unique knowledge of Gothic, had a vein of originality, a capacity to assimilate modern thought and movement, that was wholly absent in Scott. In a word, the pupil was, as an artist, far greater a man than the master. The loss of Bodley is absolutely irreparable: as our contemporary, *The British Architect*, remarks:—

Mr. Bodley combined a great regard for precedent with a distinction and refinement peculiar to himself, and his designs did not show so close a following after precedent as to exclude all freshness of interest. There is probably no living architect now who could or would follow the best precedents of Gothic work in an equally distinguished way, and looking to the aspirations and attainments of the profession of the present day, it appears very doubtful whether such a church as Mr. Bodley could so ably design will long be a possibility in this country. Those who might be able to probably would not, and those who would probably could not.

Every word of our contemporary's remarks we endorse. Bodley was a man who entered heart and soul into his work. His master, Scott, was remarkable for the work he did in church building and restoration; and nowadays it is customary to look upon a restoration of Scott's as unnecessarily sweeping and drastic. Not so Bodley; he was thoroughly conservative in his ideals.

The Times remarks that Bodley was so reserved in his ideas and expressions that few knew him as he really was. The writer well remembers meeting Bodley in a country hotel in England a dozen years ago, and the delightful evening spent together. Bodley, retiring as he was looked upon by some of his brethren, was a delightfully frank, easy, and engaging companion. The reminiscences of his life's work were most interesting. The writer was only a young assistant at the time, but the charming personality of Bodley, his profound knowledge of his art, made a lasting impression.

Mr. Bodley was a most accomplished man, a fine draughtsman, with a great knowledge of art generally and judge of good pictures. His acquaintance with decorative art was extensive and practical. For one of his decorative works he, with his own hand, drew the scheme full size upon the ground.

Mr. Bodley was elected an R.A. some years ago. A couple of years previously the Royal Institute of British Architects conferred the Royal Gold Medal upon him. Last year the University of Oxford conferred upon him the honorary degree of D.C.L. At Oxford he did much fine work, notably the additions at Magdalen College. At Cambridge he added to King's College, and restored the Library of Christ's. One of the most interesting of his churches is that at Eceleston, on the Dee, for the late Duke of Westminster. The Church of the Cowley Fathers, at Oxford, is also a very fine work. Other churches of his were St. Michael's, at Brighton; St. Martin's, Scarborough; Eton Mission Church, Hoar Cross Church, St. Augustine's, Pendlebury; All Saints', Cambridge; Holy Trinity Church, Kensington Gore; and many other churches. He was the architect of the London School Board Offices on the Thames Embankment, as well as many other works done in a long and busy life.

When Mr. Gilbert Scott proved to be the winner of the Liverpool Cathedral Competition, for which Mr. Bodley was the assessor, the committee, having in mind Mr. Scott's extreme youth, thought it would be well to associate with him an older and more experienced mind, and appointed Mr. Bodley joint architect with Mr. Scott. More recently Mr. Bodley was selected as joint architect with Mr. Vaughan, for the new Cathedral at Washington, U.S.A., Mr. Vaughan being a past pupil of his own.

He was for many years in partnership with Mr. Thomas Garner (who died only a year or two ago), the firm being well known as "Bodley and Garner."

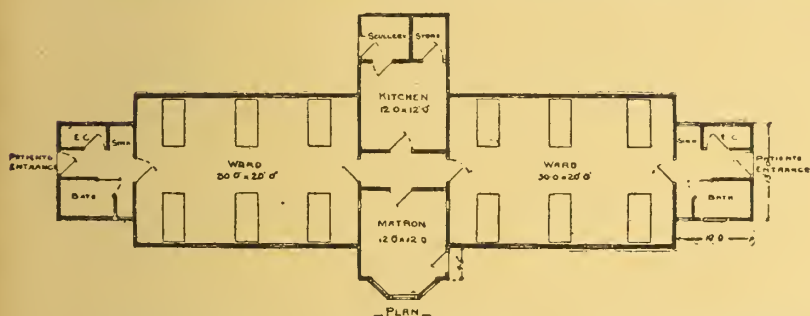
Mr. Bodley had attained the ripe age of almost eighty, having been born in 1828; but did not look anything like that age, being in full activity until quite recently.

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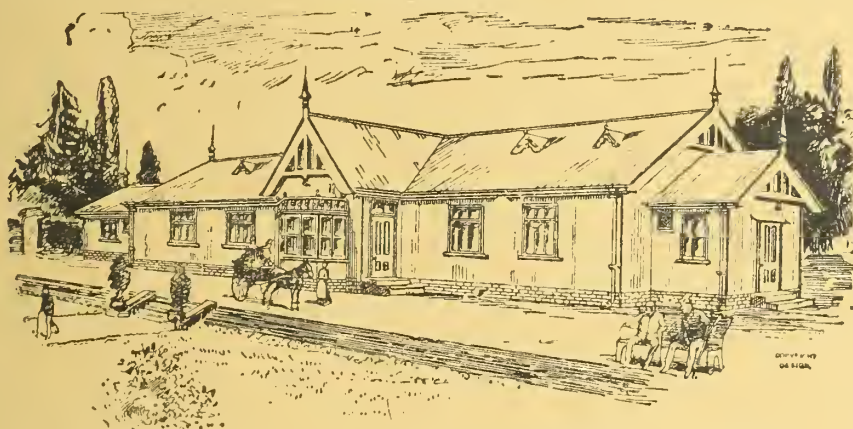
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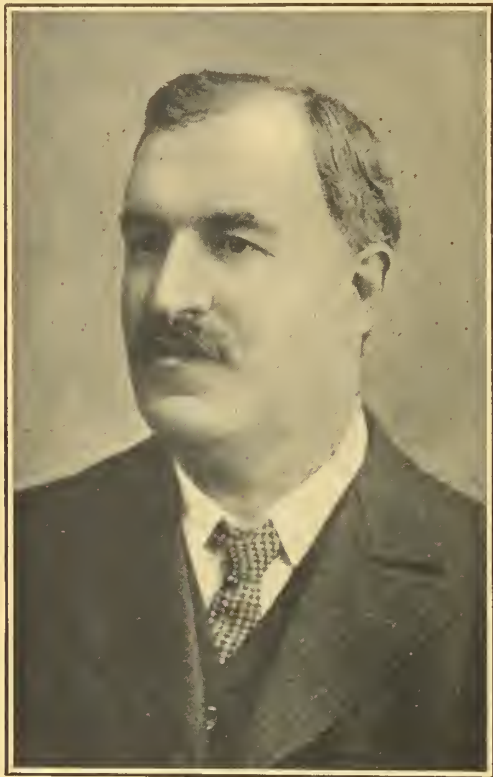
Telegrams—"Triumphrys, Dublin."

27 GOLD and SILVER MEDALS.

OUR ILLUSTRATIONS.

NEW TECHNICAL INSTITUTE, BELFAST.

In this issue we reproduce some photographs of the new Technical Institute, Belfast, which was opened formally on Wednesday by His Excellency the Lord Lieutenant.



Mr. Samuel Stevenson,
Architect of the New Municipal Technical Institute.

The building, which has cost some £100,000, occupies a very commanding position. It is faced on the three principal elevations with Portland stone, the rear elevation being of brick. It contains in all 128 rooms. The height to the main coping is 84 feet. The building is ventilated and heated on the Plenum system; it is lit by electricity, the current being supplied from the Corporation generating station; it contains two lifts, each electrically driven. A complete system of inter-communication telephones is installed. Each room in the building is fitted with a clock dial, the hands on each dial being electrically controlled by a master clock located on the ground floor.

The area of the five floors of the building is 133,862 superficial feet, the cubical contents 2,900,000 cubic feet. It may be mentioned here that, owing to the nature of the sub-soil, it was necessary to pile the foundations, and some 3,000 piles, each 40 ft. long, were driven to carry the structure. The heads of these piles are connected by longitudinal and cross timbers, the whole being bonded together by concrete. Another point to which reference may be made is that the architect in planning the building arranged that the fewest possible cross walls, consistent with giving the building stability, should be put in at the beginning. Thus, when the allocation of floor space to the various departments came to be settled, the sizes of the rooms were adjusted to suit the requirements of the case, stud partitions being built to divide off the different rooms. It may be mentioned that the planning of the departmental arrangements is a subject to which constant consideration has been given ever since the building was designed, and it is believed that the disposal of space amongst the various departments is as nearly satisfactory as it is possible to make it. The rule followed throughout was to group together in a suite of rooms all the work of a department, this rule being departed from only where heavy machinery was concerned, all such machinery, no matter to what department it belongs, being placed on the ground floor.

The architect of the building is Mr. Samuel Stevenson, C.E., of Belfast, and the builders, Messrs. W. J. Campbell and Son, also of Belfast.

On Tuesday the Lord Lieutenant, after his arrival at the Great Northern Railway Station, drove to the new Municipal Technical Institute in College Square, East.

The Viceregal party, on arriving at the Institute, were received by Mr. Samuel Stevenson, the architect, and Mr. F. C. Forth, the principal, after which a private inspection was made of the building. Lord Aberdeen expressed himself highly pleased with the magnificent structure and the excellent tutorial arrangements which he had an opportunity of personally observing. His Excellency's tour of the new building lasted for close upon an hour.

The new schools were opened on Wednesday by His Excellency the Lord Lieutenant. Lord and Lady Aberdeen were received by Sir Jas. Henderson, who presented the architect and the contractors, Messrs. W. J. Campbell & Son. The latter presented the Countess of Aberdeen with a beautiful silver casket, which was surmounted by a model of Her Excellency's coronet, and bore the following inscription:—

Presented to Her Excellency the Countess of Aberdeen by Messrs. W. J. Campbell and Son, contractors for the building, as a souvenir of the opening of the Municipal Technical Institute, Belfast, by His Excellency the Lord Lieutenant of Ireland, 30th October, 1907.

His Excellency thanked the contractors on behalf of the Countess, and observed that the casket would be preserved as a precious heirloom in the family.

Mr. Stevenson (the architect) presented His Excellency with a gold key bearing the Belfast arms, with motto and supporters, enamelled in heraldic colours. The top of the key is surmounted by a richly carved and enamelled coronet, and underneath is the initial "A" in jewelled rubies, diamonds, and emeralds, with carved wreath of shamrocks on each side. The reverse is enriched with the heraldic arms of the Lord Lieutenant, carved and enamelled. The stem, which is richly moulded and carved, is surrounded by a wreath of shamrocks delicately wrought in relief. A panel bears the following inscription, viz.:—

Presented to His Excellency the Lord Lieutenant of Ireland (the Earl of Aberdeen), on the occasion of his opening the Belfast Municipal Technical Institute, by the architect, Mr. Samuel Stevenson, 30th October, 1907. Right Hon. the Earl of Shaftesbury, Lord Mayor.

His Excellency said the key would always be valued for



Municipal Technical Institute, Belfast.—Portion of the Vestibule.

its own sake, and also for its significance. It was a fine piece of workmanship, and a credit to the skill and workmanship of those who produced it.

His Excellency then opened the door of the Institute, amid ringing cheers (given in response to his request), and a fanfare of trumpets.

LAW.

An Architect and his Fees.

At Londonderry Quarter Sessions, before his Honour Mr. M. Bourke, K.C., an action was heard in which W. E. Pinkerton, architect, sued Samuel Osborne, J.P., of Springtown, to recover £37 6s. 4d. for professional services rendered. Defendant tendered and lodged £13 in full settlement, which was refused.

Mr. J. Sloan Potter appeared for the plaintiff, and Mr. Osborne (Messrs. Mackey and Osborne) for the defendant.

Plaintiff gave evidence of the services, which included the preparation of plans and specifications and working drawings of a reservoir at Springtown, attending at the reservoir, and superintending construction, preparing plans for a cottage, etc. The reservoir was built by a man named M'Daid for £128. Describing his efforts to get money out of defendant, witness said on one occasion he was offered £5, and protested it was not enough. He managed to get £7 on that occasion.

Witness further said Mr. Osborne made no objection to the account, but invariably put off payment. On one occasion witness asked for a clerk of works, and finally Mr. Osborne gave him the services of an agricultural labourer. (Laughter.)

His Honour—You would not describe him as extravagant or over-generous?

Witness—Shall I say he was a little Israelitish in his manners? (Laughter.) On one occasion witness wrote for a cheque. The reply was that he had no cheque, and was coming to town. In reply to this witness sent Mr. Osborne a blank cheque to facilitate him. (Laughter.)

His Honour—What was the result?

He returned the cheque. I told him I had done £30 worth of work at that time. Afterwards Mr. Osborne told him he had left a cheque with Mr. Erskine, of the Provincial Bank. When witness called at the bank and saw that the cheque was for £8 he laughed, and said it was ridiculous. Before the interview finished Mr. Erskine said he had power to spring the amount of the cheque by another £5. Witness again laughed.

His Honour—There was a hollowness in that laughter. (Laughter.)

Witness—Certainly there was. It was ironical. (Laughter.)

Mr. Osborne cross-examined witness at length regarding the details of the account. Mr. Osborne left the amount of fees he was to receive to himself.

And he was deceived?—If you put it that way that is a matter of opinion. I was deceived more than he was. (Laughter.)

Further examined, witness said it was Mr. Osborne's fault if there was anything wrong about any of the work.

Mr. Osborne—It is Mr. Osborne's fault, I suppose, that the reservoir is leaking?—Most decidedly and emphatically it is through Mr. Osborne's own fault, as I have documents to show. Referring to 160 folios of correspondence, illustrated by sketches, witness said he only charged three guineas for all this, which would not have paid a typist, let alone the thought.

Mr. Osborne asked was it the case that contractors refused to tender on witness's specifications.

Witness indignantly repudiated the insinuation.

Asked regarding the advertising,

Witness said one of the advertisements asking for tenders was a bogus one, put in by Mr. Osborne to keep his tenants in good temper. (Laughter.)

Mr. Osborne asked whether the district of Springtown, to which witness paid thirty visits, at 10s. each, was not within ten minutes' walk of the Lovers' Glen?

Witness said yes.

His Honour—I was just turning that over in my mind. Was there any special attraction there? (Laughter.)

Mr. Pinkerton—Well, no. The season for Lovers' Glen is late at night. I visited the reservoir during the day. I only claim one visit, at 10s. 6d., for Lovers' Glen.

Mr. Osborne—Many a one would go there for nothing. (Laughter.)

Mr. R. H. Nolan and Mr. Thomas Johnston having testified to the moderateness of Mr. Pinkerton's charges, plaintiff's case closed.

His Honour asked was the defendant in court?

Mr. Osborne said he was, but he was very deaf. He did not propose to call him.

Mr. W. J. Aiken, defendant's agent, said there were two leaks in the reservoir, one of them sufficient to fill a two-inch pipe. The cottage was not regarded as a good job.

Mr. Potter—Are you aware that Mr. Pinkerton refused to certify regarding this work?—Yes.

His Honour—Is that the case?

Mr. Osborne—Yes.

His Honour—Decree for £37 6s. 4d., with costs.

Mr. Potter asked for expenses for the two professional gentlemen.

His Honour granted 10s. 6d. in each case.

—Derry Standard, Oct. 21st, '07.

QUEENSLAND TIMBERS.

The Agent-General for Queensland, Sir Horace Tozer, has received some samples of hardwood from a landed proprietor in his Colony, which the sender calls "teak." These are on view at the Queensland City Office, 73 Basinghall Street. One of the samples was cut from a log which has been in use for thirty years as part of a foot bridge, and its appearance shows that the timber is immune from the attack of white ants and other insect borers. The sender, who lives about 265 miles from Brisbane, on the North Coast Railway, states that he has 2,000,000 feet of "teak" as per sample—beech, crow's ash, thindersia, yellow wood, bolligum, plum, silky oak, forest oak, etc.—on his property.

The following list of the prices of the chief commercial woods grown in Queensland is given in the Report of the Director of Forests:—

	Price per 100 Superficial feet, in the Log.	Price per 100 Superficial feet, Sawn.
Acacia cedar or Mackay cedar	...	20s. to 25s.
Bolligum	8s. 6d.	16s. to 18s.
Bean-tree	10s. 0d.	20s. to 30s.
Beech	14s. 0d.	24s. 0d.
Blackbutt	7s. 6d.	15s. to 20s.
Bloodwood	7s. 6d.	15s. to 20s.
Blue gum	7s. 6d.	15s. to 20s.
Brigalow	...	25s. 0d.
Bunya pine	8s. 0d.	15s. 0d.
Caloon or quandong	7s. 6d.	15s. to 18s.
Crow's ash	8s. 6d.	17s. 6d. to 20s.
Crowsfoot elm	8s. 6d.	20s. to 25s.
Cudgerie	...	15s. 0d.
Cypress pine	...	11s. 6d.
Grey gum	7s. 6d.	15s. to 20s.
Hoop pine	6s. 6d. to 8s.	13s. to 25s.
Hoop pine, figured	8s. 6d.	19s. 0d.
Ironbark	7s. 6d.	15s. to 20s.
Kauri pine (Cairns)	...	18s. to 22s.
Marara	8s. 0d.	16s. 0d.
Myall	...	30s. 0d.
Pencil cedar or kedgy-kedgy	...	25s. 0d.
Pencil cedar (Cairns)	11s. 0d.	22s. 0d.
Red beech, silkwood, or maple	...	22s. 0d.
Red cedar	19s. 0d.	25s. to 40s.
Red stringybark	7s. 6d.	15s. to 20s.
Rosewood	...	30s. 0d.
Sandalwood	...	40s. 0d.
Sassafras	...	15s. 0d.
She pine	8s. 6d.	16s. to 22s.
Silky oak	13s. 6d.	22s. to 25s.
Spotted gum	7s. 6d.	15s. to 20s.
Tallow-wood	7s. 6d.	15s. to 20s.
Thready-barked oak	...	50s. 0d.
Turpentine	7s. 6d.	15s. to 20s.
Walnut	...	35s. 0d.
Yellow-wood	10s. 0d.	17s. 6d. to 22s.



Municipal Technical Institute, Belfast.—The Vestibule.

ENGINEERING NEWS.

Blackrock.—The Urban Council of Blackrock invite tenders for supplying and erecting 200 lanterns for street lighting. Tenders close 5th November.

Clonmel.—Clonmel District Lunatic Asylum.—The Joint Committee of Management will on the 12th November elect an engineer to take charge of, repair, and keep in working order a ten horse-power steam engine and two boilers, with the washing, mangling, cooking, and pumping apparatus attached thereto—the water pipes, fittings, and the plumbing work generally of the asylum, including a water wheel with two sets of pumps and a ram, and supervise and keep in order the electric lighting plant, at a salary of £75 per annum and allowances of a furnished apartment, ordinary rations, fuel, light, washing, and attendance—all valued at £60 per annum for pension purposes.

Cork.—At a meeting of the Cork Corporation Sir A. Sutton, in accordance with notice, moved:—"That a special committee be appointed consisting of the Lord Mayor, together with two members to be nominated by the representatives of each ward, to consider the practicability of providing the City of Cork with a main drainage scheme." He said they all knew the awful smell that arose both from the north and south channels owing to their present system of drainage. This could neither be good for the health nor the commercial interests of the city, because people coming to Cork would not linger long here owing to these smells. He had spoken to a number of large ratepayers, who were of the same opinion as himself—that it would be well worth their while to meet a small increase in the rates in order to carry out this necessary work. Alderman Kelleher seconded the motion. The Lord Mayor said the scheme had his sympathy. He knew of no work in the city which was more necessary, and especially was it needed when they had a hot summer. He thought that the time had arrived when, in the interest of the health of the citizens, action should be taken in the matter. He would ask the engineer to prepare a workable scheme as soon as possible. The motion passed.

Castleblayney.—The new waterworks are now nearly completed. The large reservoir, which covers two acres, is now full of water. Mr. John Callan, of Castleblayney, is the contractor, and Mr. F. Bergin, Dublin, the engineer.

Dublin.—Richmond District Asylum invite offers for the oil engines, pumps, shafting, valves, etc., connected with the Broadmeadow Waterworks, near Swords, Co. Dublin. All the plant is in good working order, and facilities will be afforded for inspection and testing.

The following tenders were received for the Whitecross and Cornells court extension of the Foxrock sewage scheme according to plans of Mr. P. H. McCarthy, B.E.:—H. Pemberton, £2,389; P. Dowd, £2,034 17s. 10d; Fraser and Mosley, £1,951 16s.; George Dixon, £1,633 12s. 6d.; John Graham, £1,627 4s. 9d. Mr. Graham's tender was accepted.

Tenders are invited by the Richmond Asylum Committee for the construction of filter beds, clear water tank, etc., at Portrane Asylum, Donabate, according to plans and specification of their engineer, Mr. F. Bergin, B.E., 36 Westmoreland Street, Dublin. Tenders close 20th inst.

Tenders are invited for supplying and fitting up a small bore high-pressure hot water heating apparatus capable of warming in a satisfactory manner certain rooms in old Fire Brigade Station, Chatham Row, according to plans of the City Engineer. Tenders close 6th inst.

Dalkey.—The Urban District Council invite tenders for the construction of about 140 yards of a 9-inch sewer at Abbeyview, Coliemore Road. Tenders to be lodged the 10th inst.

Dunmanway.—The Council of the above district will on 19th inst. consider plans and specification in which provision is made for a plant to supply 250 lights for the town of Dunmanway (acetylene or oil gas).

Greystones.—The system by means of which Greystones should be lighted formed the subject of discussion at a representative meeting of residents held in the local Grand Hotel. Two lighting schemes were submitted to the meeting—the Mansfield Oil Gas and the Anderson Coal Gas. Ultimately it was agreed, on the proposition of Mr. D. B. Sullivan, K.C., seconded by Mr. J. Kinlan, that a committee of ratepayers be appointed to report to a future meeting on the relative merits of such schemes as may be brought before them. The following were appointed on the committee:—Messrs. J. Kinlan, R. Doyle, French, Ivan Price, H. Fitzgibbon, Carr, Flynn, and Batchelor.

Kilrush.—Mr. M. Morrissy, of London, son of the late Mr. W. Morrissy, who for many years acted as town surveyor, has been appointed to the position held by his father.

Longford.—The Longford Gas Company has been sold to a London syndicate for £10,000, and a new company, to be called the Longford District Gas Company, has been

formed to carry on the business in the place of the old firm.

Limerick.—The chief item of interest at the Borough Council meeting was the confirmation of the appointment of Mr. P. T. McNamara, Limerick, for the position of Borough Electrical Engineer, he being the candidate selected by the Electric Lighting Committee. The vacancy arose through the resignation of Mr. Gallinagh, C.E., who has accepted an appointment at Singapore. Mr. McNamara was elected to the position subject to the proviso that Mr. McNamara's testimonials be submitted to the Cork expert; that he also submit himself for examination and satisfy the Council that he complied in every way with the terms of their advertisement.

Midleton.—The Urban District Council will on the 6th inst. consider tenders for the construction of a clarifying tank and certain inspection pits at Bailick, and also for the erection of two ventilation pipes in connection with the sewer from St. Mary's Cottages.

IMPORTS.

Port of Dublin.

October 16.—Per Bengore Head, from Quebec, 20,228 pes. firwood, to order.

October 17.—Per Winga, from Goteborg, 5 cases glass, 2,691 pcs. boards and battens, 4,450 bdles. laths, to order. Per Maggie Warington, from Ghent, 30 cases window glass, 10,905 bags cement, to order. Per Drot, from St. John's, N.B., 77,829 pcs. deals and ends, T. and C. Martin, Ltd. Per Annie Brocklebank, from Rochester, 200 tons cement, A. Agnew.

October 19.—Per City of Stockholm, from Antwerp, 80 cases window glass, Brooks, Thomas and Co., Ltd.; 266 do., do., T. Dockrell, Son and Co., Ltd.; 39 do., do., T. and C. Martin, Ltd.; 20 do., do., S. Boyd; 25 do., do., P. Ceppi; 10 do. plate glass, 213 steel joists, 5 cases marble, to order.

October 22.—Per Lady Martin, from London, 600 sacks cement, Wallace Bros., Ltd.

October 24.—Per Bontia, from Portland, 118 tons Portland stone, E. S. Glanville.

October 25.—Per Queen's Channel, from Shoreham, 395 tons cement, W. Richardson.

October 26.—Per Isabella, from Belfast, 160 tons bricks E. and J. Burke. Per Catherine Latham, from Connah's Quay, 120 tons pipes, etc., J. Kelly and Son.

October 28.—Per City of Berlin, from Hamburg, 60 rolls roofing, 3 casks asphalt, to order. Per Dunmore Head, from Riga, 67,439 pes., 573 loads firwood sawn, 18 pes. oakwood, to order.

October 28.—Per Marian, from Bridgwater, 106 tons bricks, Monsell, Mitchell and Co., Ltd.

October 28.—Per Irene, from Bridgwater, 90 tons bricks, T. Archer; 50 do., do., T. and C. Martin, Ltd. Per New Design, from Bridgwater, 150 tons bricks, T. and C. Martin, Ltd.

October 29.—Per Penrhyn, from London, 345 tons cement, Brooks, Thomas and Co., Ltd. Per Lady Roberts, from London, 1,500 sacks cement, T. Dockrell, Sons and Co., Ltd.

ARCHITECTURAL ASSOCIATION OF IRELAND.

Session 1907-1908.—First Half.

ORDINARY GENERAL MEETINGS.

November 12.—"A Holiday in the Mediterranean." George P. Sheridan, A.R.I.B.A. (Illustrated by Lantern Views).

November 26.—"Art in Everyday Life." Mrs. Kingsley Tarpey. (Illustrated by Lantern Views).

December 10.—"The Architect's Dilemma." Frederick Batchelor, F.R.I.B.A.

Meetings will be held at 15 South Frederick Lane, at 8 p.m. prompt.

DUBLIN OPERATIVE LATH MAKERS' SOCIETY.

TO BUILDERS, CONTRACTORS, AND OTHERS.

Entirely Hand-split Laths can be had from the following Trades Union employers:—

F. Keegan, Church Street.

P. Tracy, Donnybrook.

R. Martin and Co., Sir John Rogerson's Quay.

T. and C. Martin, North Wall.

G. Rome, 5A Clanwilliam Place.

N.B.—Laths not entirely hand-split are foreign-made.

THE MARY



The New Municipal Ten



nical Institute, Belfast.

Architect, Mr. S. Stevenson.

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THE IRISH BUILDER AND ENGINEER.

A JOURNAL DEVOTED TO

ARCHITECTURE, ARCHÆOLOGY, ENGINEERING, SANITATION,
ARTS AND HANDICRAFTS.

Every Second Saturday.

[Established Jan. 1859.]

No. 23—Vol. XLIX.

HEAD OFFICE

November 16, 1907.

34 LOWER ABBEY ST.,
DUBLIN.

Price 1d.

TOPICAL TOUCHES.

A new bank house for the Hibernian Bank, Ltd., is to be built at Birr, from the designs of Messrs. W. H. Byrne and Son, architects.

* * * *

Mr. Frederick Batchelor, F.R.I.B.A., was, at the last meeting of the Royal Institute of Architects of Ireland, declared elected as President for the ensuing three years. Mr. Batchelor is an Englishman, but has been resident in Dublin for nearly twenty years. He is, we believe, the first Englishman to be elected President of the Institute since its formation.

* * * *

We have recently seen some samples of Scagliola, made in Dublin by Messrs. George Rome and Co., and they are most admirable specimens of workmanship, the natural marbles being simulated with the greatest skill and effectiveness. Messrs. Rome and Co. can produce the Scagliola in any sizes, and at particularly moderate prices. Properly made, Scagliola is a beautiful and decorative material.

* * * *

H. M. the King has, on the occasion of the recent birthday honours, directed Mr. Robert Young (Messrs. Young and Mackenzie, architects) to be sworn a member of the Privy Council in Ireland. We believe that this is the first instance on record of an architect being created a Privy Councillor. Mr. Young is an uncle of the Right Hon. J. A. Bryce, ex-Chief Secretary for Ireland, and now Ambassador to the United States.

* * * *

Some interesting lectures and discussions on the plague of tuberculosis in Ireland took place recently at the International Exhibition, when several eminent experts gave their views. Bad housing, with defective drainage; close, damp, and unwholesome over-crowded apartments, are amongst the chief causes, it was generally conceded, of the fearful ravages of the disease in Ireland. Larger, airier, and more wholesome houses for the labouring and artisan population in town and country, are amongst the most effective agents for combating the disease.

* * * *

Elsewhere we publish an address to the Edinburgh Architectural Association by Lord Kingburgh. The Right Honourable Sir John McDonald, K.C.B., Lord Justice Clerk of Scotland—an office corresponding, we believe, to that of Lord Chief Justice in this country—is a man of the most versatile and original mind, occupying a chief place amongst Scottish lawyers and on the judicial bench. He possesses a close acquaintance with the principles of Architecture and Art, upon which he is a frequent and trenchant speaker and writer—very jealous of the beauty of the scenery, the old buildings of his country, and very original and outspoken in his observations on attempts at injury or spoliation, or vulgarity. He is a Brigadier-General in the army—the only instance we are acquainted with of a volunteer officer attaining that rank. He is a writer on military tactics, and one of his books has been translated into German. He is interested in motoring, an authority on balloons, and was one of the International referees on football. In addition, he is a close student of theology, and has a broad and tolerant mind.

The question of a new system of main drainage for Cork City is at present on the *tapis*, but it is believed that the question of cost prevents the possibility of its serious consideration for a considerable time to come.

* * * *

The *Idler* magazine continues the fine series of "British Homes," illustrated by Mr. Raffles Davison, and more than once previously referred to by us. The November number contains illustrated descriptions of "Highlands," designed by Mr. Harold C. Trimnel, architect.

* * * *

The building trade in Ireland still continues in a state of unmitigated dulness. The slight improvement noticeable in the spring has not been maintained, and in Dublin the prospects of employment for the working classes were never worse. There is every indication that both for artisans and labourers the winter now just upon us will be a very trying one.

* * * *

In the President's address to the members of the Architectural Association of Ireland, published in our last issue, reference was made to the east wall of Lamb Alley, as the remains of one of the flanking towers of Newgate, one of the old city gates of the walled city. Through a printer's error this was referred to as "Newmarket." We are informed by Dr. M'Dowel Cosgrave that the old silver grates of Ely Place do still exist.

* * * *

On last Wednesday week Mr. J. H. Moore, the President of the Institution of Civil Engineers in Ireland, read his inaugural address. Mr. Moore touched upon a variety of topics of great interest to engineers, but as no copies of the address were available for the Press, we are unable to reproduce more than a brief *résumé*. Mr. Moore referred to the prospects of employment for engineers in Ireland, and he certainly held out no very rosy hopes. Harbours, piers, and, possibly, canals, might be developed in the near future, while the operation of the Labourers' Acts afforded some modest employment, but this, as Mr. Moore noted in passing, is mainly in the hands of unqualified persons. He did not, however, explain why, this being so, the Institute should have opposed, or threatened to oppose, the Architects' Registration Bill. The address was an extremely interesting one, and it is a pity that it could not have been made available for publication, for the benefit of those members of the Institute and others who were unable to be present.

* * * *

At the dinner club immediately before the meeting, Mr. Moore made an announcement which was received with unqualified regret, if not of consternation, by all present—namely, that Mr. James Dillon, who for so many years has acted as hon. sec. and treasurer of the dinner club of the Institution with such great success and wonderful financial economy, had at length begged to be relieved of the responsibility. Mr. Dillon has well earned his release, and if Mr. Hargreave, who has consented to act as his successor, is half as successful, the members will have no reason to complain. How Mr. Dillon contrived to carry on the dinner club so well and so economically, making it one of the pleasantest features of the Institution, was always a mystery.

THE NEW TECHNICAL INSTITUTE, BELFAST

(Special to the "Irish Builder and Engineer.")

BY OUR NORTHERN CORRESPONDENT.

In our last issue we gave some illustrations and particulars of, together with a brief account of the opening ceremony in connection with, the New Municipal Technical Institute, Belfast; and, as this is the most important building and scheme of its kind recently carried out in Ireland, we hope the following additional information will be of interest to our readers. The "Agriculture and Technical Instruction (Ireland) Act" became law in 1899, and was adopted by the Corporation of Belfast in the year following, when portion of the grounds of the Royal Academical Institute was secured for site, and Mr. Samuel Stevenson, Royal Avenue, Belfast, appointed as architect. The building scheme, as first prepared by him, was estimated to cost £57,000; but, as technical education was meanwhile being carried on by subsidising several existing institutions and hiring various premises, and as it soon became apparent that the supply of students would be much in excess of what was at the outset supposed, the Corporation, in July, 1901, adopted a very considerable extension of the scheme, bringing it up to an estimated expenditure of £81,000; and the building contract for this extended scheme was given to Messrs. W. J. Campbell and Son, Belfast, in February, 1902. In May of the same year the contractors commenced work, which they to all intents completed a little over four years later, as teaching was, in almost full swing in the new building in September, 1906, although the formal opening took place only last month. During the progress of building it was again found that, even as extended, the scheme would be insufficient, so in 1904 an additional or fifth storey was decided on, bringing the estimated expenditure up to £100,000, which is now the cost of the building structure as completed. Subject to some unavoidable adjustment of account, it will thus be seen that no bill of extras has been incurred, which is a fact highly creditable to all concerned. On the basis of the cubical contents of the structure being 2,900,000 cubic feet, as given in our last issue, the cost of construction works out at 8½d. per cubic foot, and it is questionable if any building of the kind and character has been erected at so low a rate. Four-and-a-half million bricks were used in the structure, 80,000 cubic feet of cut stone, and 900 tons of steel in joists and girders.

A criticism which the Institute invites and cannot escape in respect of architectural treatment, is the likeness of its principal facade to that of the new War Office, London. Photographs of the two buildings, taken from similar points, would be almost undistinguishable, were it not that the Belfast Institute has certain architectural faults which the War Office lacks, such as the superimposition of the double columns of the angle turrets on a vertical line of fenestration. In the central hall of the Institute, again, a jarring note is struck by the provision of wall pilasters carrying ceiling trusses about a-third of their width. But considerations of economy have, in the main, and not unwisely, so limited adornment that both externally and internally the dominant impression given by the Institute is one of utility rather than beauty. As for the materials and workmanship of construction throughout, there can be nothing but praise, and such is due to all concerned—architect, building contractors, and the sub-contractors supplying specialities. In addition to expenditure on structure, a sum of £40,000 has been allocated to equipment, furniture, and fittings, divided departmentally as follows:—Mathematics, £500; mechanical engineering, £9,000; naval architecture, £700; physics and electrical engineering, £8,000; architecture and building, £1,300; sanitary engineering, £1,000; textile industries, £5,000; pure and applied chemistry, £3,000; printing trades, £700; natural science, £700; commerce, including modern languages, £1,100; women's work, £1,200; art, £4,800; miscellaneous trades and industries, £6,800. The financial situation of the Technical Instruction Scheme may be summarised as under:—

	£
The Corporation rate for Technical Instruction at 1d. for year ending 31st March, 1907.....	5,409
The Department of Agriculture and Technical Instruction (Ireland) Endowment Grant (calculated on a basis of population).....	11,061
Class fees	1,955
Government grants on account of instruction given	2,415
Receipts from miscellaneous sources	1,534
Total.....	£22,374

	£
On this there is an annual charge for rent of site amounting to	1,350
Add for interest and sinking fund for the building loan (repayable in 50 years).....	4,400

Total..... £5,750

The income available is thus.....£16,624

Some Structural Details.

The entire flooring of the building has been carried out in steel and concrete, the laboratories and class-rooms having solid wood block flooring as a finish, the corridors and lavatories being finished in marble terrazzo flooring, and the vestibule and main hall in black and white marble pavement. The walls of the laboratories, class-rooms, and corridors are finished in plaster, with a Portland cement dado about 4 ft. 6 in. above the floor. The vestibule, entrance hall, staircase, and central hall are finished in a more elaborate style in Keen's cement. The walls of the chemical laboratory are finished with white-glazed bricks with brown dado, whilst the lavatory walls are tiled with white-glazed tiles to a height of eight feet, and above this the walls are plastered. The roof is of steel and concrete, covered with Limmer asphalte, except where glass roofs occur, and these are carried out with steel principals and patent lead glazing. Abundant lavatory accommodation of the latest and best type has been provided on all the floors for the use of teachers and students; the fittings are thoroughly serviceable, and well suited to the needs of a scholastic institution. A very complete and efficient system of hot water supply is installed, being so arranged that warm water in abundance is immediately available where required. The water is heated by means of steam calorifiers situated in the basement. The problem of providing requisite gas and water supplies to the numerous laboratories, class-rooms, and workshops has been successfully solved, and the distribution of these in all parts of the building is very thorough, each room and section being separately controlled with valves. Future repairs or extensions can be effected without interfering with adjoining rooms or with the building as a whole. The steam boilers, two in number, are placed at the rear, the smoke being carried away up a lofty chimney. The heating and ventilating plant and the house for the superintendent of the building are also at the rear of the institute.

Heating and Ventilating.

For the heating and ventilation of the edifice the Plenum system has been adopted, so as to ensure an ample supply of fresh air in all conditions of weather. The installation has been carried out by Messrs. Musgrave and Co., Ltd. The plant consists of a duplicate set of their patent "Rainbow" type air purifiers, which draw in the supply of fresh air at high level. The air, after being washed and screened, enters the heating chamber, where it passes over tempering coils. It is then distributed throughout the building by a pair of large "Ulster" Centrifugal Fans. The distribution is effected by air-ways under the ground floor corridor, and from this main truck the air supply finds its way by shafts to the different rooms and departments. The temperature of each individual room is further controlled by separate subsidiary heaters placed at the base of each of the flues leading to the rooms. The fresh air enters the rooms some eight or nine feet from the floor level, and the vitiated air passes out of the rooms near the floor into the corridors. From the corridors it finds its way out of the building by large turret ventilators at the heads of the staircases. The heating medium adopted is low-pressure hot water, and the installation is specially designed so that the system will work either naturally by gravity or under forced and accelerated circulation by mechanical means. This arrangement gives great flexibility in the heating, and combines the practical advantages of steam and hot water heating, whilst maintaining the heating surface at a very low temperature, and giving the simplicity and economy of hot water. The fans are arranged so that they may be driven together or independently. The principal drive is by a 60 h.p. direct coupled steam engine, the exhaust from this engine being utilised in the heating system. A 45 h.p. electric motor is provided as a stand by, and for driving the fans when no heat is required. The capacity of the fans at normal speed is 140,000 cubic feet of air per minute, equivalent to approximately 288 tons of air per hour. The installation is specially arranged so

that the heating of certain rooms in the art section can be carried out independently of the rest of the building. This is effected by an auxiliary system of direct radiation.

The Lighting.

The installation of electric lighting and power was carried out by Messrs. Wm. Coates and Sons, Ltd., of Belfast and Dublin, to the specifications of Professor Stanley, who was the consulting engineer. The electric current is taken from the mains of the Corporation electricity department, which enters the institute at the switchboard room and passes through three 500 ampere circuit breakers to the main switchboard. The main switchboard consists of ten panels of white Sicilian marble, 1½ inches thick, and is about 20 feet 8 inches long by 6 feet 6 inches high. Two panels control the supply of current at 220 volts pressure, and each can carry up to 500 amperes. One panel controls the supply of current at 440 volts pressure, and can deal with current up to 250 amperes. Four panels are used to distribute the current to the various lighting circuits and two distributors to the various power circuits, while the tenth panel controls a balancer set, which helps to keep the load uniform on both sides of the three-wire system of supply. The board has accommodation for sixteen lighting circuits, each of 50 ampere capacity, and eight motor circuits, each of 100 ampere capacity. The Institute is a symmetrical building of five floors, and, for the purpose of lighting, each floor is divided in half at the main staircase, the northern half being supplied from the positive side, and the southern half from the negative side of the three-wire supply system, so as to obtain a balance of the load on each side, the central area being dealt with separately. As each of the main departments in the Institute occupies approximately one-half of the floor on which it is situated, this system of supply practically means that the lighting feeders are identified with the different departments. The class-room lighting is mainly carried out in plain brass three-light fittings, with small opal shades; large laboratories and drawing-rooms are lighted by inverted enclosed arc lamps; corridors and small rooms by single pendants, while the lighting of the art department is of a special nature suitable to its requirements. Blackboards and lecture tables are specially illuminated by linolite batteries, and in the chemical laboratory the benches are fitted with two-light standards of gunmetal with recessed switches in the bases of the standards—specially made by Messrs. Coates and Sons for this contract. The motor circuits are identified with the departments where the motors are installed. The whole installation, one of the largest in Ireland, consists of an equivalent of 1,820 lamps of 16-candle power, 14 lamps of 200-candle power, 80 arc lamps, 6 lanterns for slides, and 20 motors. There are over 8½ miles of tubing, and 26 miles of cables and flexible wires, 150 three-light and special fittings, and 1,100 single pendants, while on the distribution boards there are 700 switches. The system of recording time in the institute is by electrically-controlled clock dials worked by a master clock. 120 dials are installed, and these are automatically worked through three relays from electric batteries, taking their time from the master clock, so that all the dials are in unison—an important consideration in a building of this description. There is also an inter-communication system of telephones installed, by which each department can communicate with every other department, and with the responsible officials in the institute.

The Principal Departments.

A few details in regard to some of the principal departments of the commodious building will doubtless be of interest. One of the chief rooms is the beautiful Central Hall on the first floor, which is admirably adapted for the purposes of public functions in connection with the Technical Institute. It is amply provided with seating accommodation for the students and their friends, who assemble here from time to time to hear lectures on various subjects, delivered by well-known citizens or by members of the teaching staff, and it is also useful on the occasion of examinations, while its excellent lighting by means of the artistically decorated windows, which bear the names of men renowned in science and literature, was abundantly evidenced during the exhibition of works by art students recently held in it.

The Building Trades Department.

The Building Trades Department is also situate on the first floor, the whole of the north side of which it occupies. The woodworking shop is the best of its kind in this country, and has few rivals in the United Kingdom, so far as elegance and suitability for its purpose is concerned. There are twenty-three single wood-working benches of special

pattern in this room, each containing a separate set of tools and drawing appliances for each individual student; arranged and numbered so that the same set is always in use by the same student. Cupboards in each bench afford separate accommodation for the drawings and models of six students. The tools and appliances of a special character are arranged in suitable cupboards around the room, every item having its particular place. Around the walls are beautifully coloured charts of timber trees, maps, and diagrams, so arranged on cords that they can be raised or lowered to suit the convenience of the teacher. The room contains a varied collection of woods, local and foreign, and a special collection of Australian hardwoods. The building construction drawing office accommodates fifty-six students, and the other workshops of the department, including the painters' and decorators' room, and the woodcarvers' room, are in process of fitting up. Situate at the extreme end of the north wing, on the same floor, is the plumbers' shop, a spacious room containing 1,500 square feet. The floor is of granolithic, and fitted with channels on three sides, to convey away the water when the shop is used for hydraulic experiment and drainage work. Benches are arranged on three sides and centre of the room to accommodate fifty students. A model of a roof, surrounded by benches forming a parapet, occupies a position in the centre of the floor, while on the south wall of the shop cisterns, cylinder and boiler, for hot water experimental work are fixed. A feature of the equipment is a lead burning apparatus of the most improved type, made by the students.

The School of Art.

The School of Art occupies the whole of the top floor of the Institute, which was, of course, allocated therefor on considerations of roof-lighting. These roof lights are turned to the north in every case, so as to give steadier effects on the work to be studied, and are supplemented by side windows, which on the north side are expanded to form a splendid series appropriate to the work to be carried on there. All the windows are fitted with dark blinds, so that the amount of light can be reduced or increased to suit any particular study in progress. The evening classes are held under very favourable conditions as regards lighting. The ample installation of steady incandescent lights, and the way in which these can be manipulated, puts out of question altogether any danger to eyesight. In short, the technical work requires ample light, steady light, and power of manipulation to suit varying conditions, and in the present school all this has been provided. There are in all 26 rooms, grouped in the five divisions of the school's work, namely—Elementary work, drawing and painting, design and handicrafts, architecture, modelling. On arrival at the top of the principal staircase, the corridor to left and right is devoted to the purposes of a school museum. For the elementary work two rooms are provided at the South Corridor—one a very large one, capable of accommodating large classes or of being sub-divided for a number of smaller classes; the other for finished studies carried on over a lengthened period. Modelling takes up five rooms at the south-west angle, including a cloak room for blouses, clay room, elementary room, life room, casting and pottery room, all fitted with the best and most up-to-date fittings and appliances. Design and architecture take up four rooms at the east side or front of the building—an elementary lecture-room, a large advanced design-room, and a special room for advanced students in architecture. Minor artistic handicrafts will be carried on in the dressing-room, but a special room is provided for such work as enamelling, art metal work, stained glass, and gold and silversmiths' work. The whole of the north side is given up to advanced drawing and painting. There are two life rooms, a large antique room, an anatomy room, and two rooms for painting from still life. A feature in equipment is the installation of an optical lantern for ordinary class teaching. Among other features of the school are its large antique room, stocked with a good range of reproductions from antique figure sculpture, and also its enamelling and metal work room, where complete objects in metal and enamel—jewellery and silversmith's work—are made by students from their own designs.

The Textile Industries Department.

The Textile Industries Department, on the ground floor, is equipped with the most modern and approved types of textile machinery, and the lecture and class rooms are also fitted up with every convenience for giving instruction in each branch of the work. In the Flax Spinning section, machinery is provided for treating the raw flax in the scutched state—i.e., the commercial condition in which it is received at the mill, and passing it through the processes of roughing, machine backling, hand dressing, spreading,

drawing, roving, and wet spinning for line yarns. The flax tow fibres can also be treated in the tow card, and subsequently combed by machine preparatory to drawing, roving, and wet or dry spinning. Provision is also made for reeling the flax yarns, and for doubling and folding the same when required. In the last machine other textile yarns can be used for the production of a variety of fancy twist yarns. The Flax Spinning section is being made most complete for the production of a range of yarns from coarse to fine counts (lea numbers). In the Weaving section a full complement of weaving preparation machinery is provided, so that it is possible for students to receive practical demonstrations of the processes of weft or warp winding, of warping by hand or linen warping by machine, of beaming and linen dressing or of beaming and dressing from chain warps. There are 26 hand looms and 28 power looms, each of which is different in some essential principle of mechanism or arrangement of detail for the production of various classes of fabrics. A considerable variety of working models is also provided illustrating the most important motions in spinning and weaving machinery. The foregoing looms have been selected and installed so as to make it possible to produce every known variety of linen and union fabrics, as well as many other important textile fabrics.

The Textile Testing Laboratory is equipped with instruments, apparatus, and machinery for testing the strength and elasticity of yarns, testing the strength of woven fabrics, and conducting other tests. Facilities are afforded to each student to design original patterns, and to peg or cut and lace his cards by hand or machine preparatory to weaving. The Museum is also being supplied with a general and historical collection of patterns of linen, cotton, silk, woollen, and worsted fabrics, including a collection of various types of Belfast, past and present, productions in plain linens, wave varieties, and damasks. The Museum is already supplied with several varieties of flax straw, scutched flax, and samples of the material after it has passed through each respective process during its manipulation into spun yarns, and subsequently its manufacture into woven fabrics.

The department of Physics and Electrical Engineering comprises two rooms on the ground floor for machinery, and ten rooms on the south corridor of the first floor. The electric machinery room, 52 feet by 26 feet, contains all those machines which have been installed for testing purposes and for the practical training of the students. Adjacent to this is the switchboard-room, where will be found the main switchboard, and from which all the electric supply for the institute is taken. The switchboard is so placed that students can study the connections of the various circuits, and as the wiring of the whole building for both lighting and motors is carried out on the surface, the students have no difficulty in studying this example of an important electric installation. On the first floor the department commences to the right of the main staircase with the physics laboratory, which is 47 ft. by 27 ft. 6 in. This room is designed to accommodate forty students at practical work, but on special occasions this number can be increased. Here experiments are carried out in the subjects of general science, sound, light, and heat, and a complete equipment of apparatus is installed in cases around the room and in cupboards in the benches, making the room self-contained and providing accommodation for large classes. Adjoining the physics laboratory is the optical-room, in which experiments on light and photometry are carried out. The equipment in this room is reserved for advanced students in physics, the apparatus installed being more or less of a costly nature. The elementary electrical laboratory is a large room, 45 feet by 27 feet, with accommodation for over forty students, and an extensive equipment of apparatus necessary for carrying on experiments on the theory and simple effects of magnetism and electricity. Owing to the fact that the elementary classes are large, the equipment in this room is extensively duplicated. In the advanced electrical laboratory are mounted the delicate mirror galvanometer, and other instruments for special work, all of the most modern description and best quality. Next in order comes the preparation room, which is fitted with cases for the storage of miscellaneous apparatus, and in which apparatus and instruments are repaired, and new apparatus constructed. The elementary lecture-room, 38 feet by 28 feet, has seating accommodation for 100 students, the seats being just sufficiently galleried to command a full view of the lecture table from all points. The lecture table, 20 feet by 3 feet, is of special design, with gas, water, and electric supply, both direct current and alternating. The room is fitted with a double sliding blackboard, 10 feet by 4 feet; a lantern screen, 8 feet square; and a specially-constructed optical lantern, with electric arc illuminant, so arranged that experiments and slides can be shown on the screen, and optical experiments carried out on a scale which

makes them easily discernible by the whole class. The advanced lecture-room is similarly fitted, and has accommodation for forty students. The electric testing room is set apart for experimental work by engineering students on alternating and direct current commercial apparatus. The wiring room is devoted to practical work in running and jointing cables and conduits, wiring of fittings, and other work of a like description. The whole furnishing of the department is carried out in Michigan oak, with 1½-in. teak tops to all benches and tables, this portion of the equipment being carried out by the North of England School Furnishing Co., Ltd.

The section of the Institute devoted to Pure and Applied Chemistry comprises eleven rooms in all. The main chemical laboratory, which is situated immediately above the Central Hall, and occupies considerably larger floor space, is, without doubt, the finest room in the institute. Its walls of white glazed brick and the excellent light admitted by its large windows and roof-lights, make it an ideal laboratory even on the darkest of winter afternoons, whilst the wide bench accommodation and the admirable ventilating arrangements add not a little to the comfort of both teachers and pupils. Altogether there are over eighty working benches, to each of which gas, water, and electric light are laid on, and lockers with a complete outfit of chemical apparatus are provided for nearly 200 individual students. The benches are arranged in groups of four; each group or unit is complete in itself, and is provided with control taps and switches, so that in case of an accident or of repairs being required, it may be isolated without interfering with the supply of gas, water, or electricity to other parts of the laboratory. A special feature of the fittings of the laboratory is that of the waste pipes. These are half round earthenware pipes, which lead out through the walls to wide iron down-pipes, and which are easily accessible through traps in the floor. By this arrangement the stoppages and resultant overflows, which are such an annoyance in a chemical laboratory, are rendered practically impossible.

The Laboratory.

A small balance-room opens off the laboratory, where the more sensitive of the chemical balances stand on slate benches, which are fixed to the wall to prevent vibration. There are also attached to the laboratory an apparatus store and a small preparation room for the use of teachers. There are two lecture-rooms in which the theoretical part of the work is dealt with, and which can accommodate sixty and eighty students respectively. Between the lecture-rooms, and accessible from both, is the preparation-room, where apparatus can be prepared for the lectures, which are fully illustrated by experiments and by lantern slides. A private room for the professor of chemistry, and a general store for chemicals, complete the equipment of this portion of the department. The bleaching and dyeing section is no less interesting than that devoted to pure chemistry. The laboratory is equipped with sixteen sets of steam-heated experimental dye-baths, which are used for carrying out experiments on a small scale in the dyeing and scouring of cotton, linen, and woollen goods.

The Engineering Department.

The Mechanical Engineering Department—usually one of the most important sections in an industrial centre like Belfast—is located partly on the ground floor and partly on the third floor, and covers an area of some 13,000 superficial feet. The section on the latter floor contains two mechanical drawing-rooms, two lecture-rooms, a mechanical laboratory capable of accommodating about fifty students at one time, and a photo-printing room. The engineering laboratory, workshop, and boiler-house are located on the ground floor. The mechanical drawing-rooms are supplied with models of machine details, geometrical solids, models showing the solution of geometrical problems, and wall diagrams. The lecture-rooms are equipped with optical lanterns and a large number of lantern slides of engineering details. The photo-printing room is fitted with a complete electric outfit.

The Mechanical Laboratory.

The Mechanical Laboratory contains a large number of pieces of high-class apparatus suitable for illustrating the various sections of mechanics and heat engines. The apparatus is all of the small type, and is either constructed to designs specially prepared by the departmental staff, or has been purchased from eminent instrument makers. This laboratory differs from most laboratories of the kind in that an attempt is made to keep the application of mechanics to engineering well to the front. It contains a number

of very small prime movers, which are used by the beginners in making efficiency tests, thus preparing the way for a clearer understanding of the more complex work of the engineering laboratory. There is also a small hydraulic section to the laboratory, in which the flow of water through orifices and over weirs, the impacts of jets, and the losses of head in channels can be studied. The general arrangement of the Mechanical Engineering Laboratory is similar to that of the engineering laboratories of the German Polytechnics. The two bays, measuring 114 ft. by 21 ft., are covered by two travelling cranes, each capable of lifting two tons. The laboratory has a double floor; and in the space between the two floors all the shafts, belts, and pipes are located. The floor of the laboratory is thus kept as free as possible from obstructions. All arrangements which are not required directly for experimental work are out of sight, but are quite easily inspected. A water measuring tank of ten thousand gallons' capacity is built below the lower floor; it is divided into two parts, and is supplied with a tumbling bay. For the carrying out of complete tests on internal combustion engines, three types of engines are installed, and the laboratory is thoroughly equipped in the most up-to-date manner. The Mechanical Engineering Workshop is divided into two sections—the Machine Workshop and the Pattern Shop. The former contains a high-class equipment of modern machine tools, and has accommodation for twenty-two students, the tools having been chosen so as to illustrate as wide a range as possible of makers. The Pattern Shop is supplied with six benches and a full equipment of small tools. The boiler-room installation comprises a Lancashire and a marine boiler, each capable of delivering 5,000 lbs. of steam per hour. These are supplied with water by two feed pumps, and with this and the other plant boiler efficiency tests, under a great number of various conditions, may be carried out.

Space forbids our describing the remaining departments in equal detail; but, from the foregoing, it will be seen that the equipment of the Institute is throughout of the most modern type of efficiency. The student of to-day is being provided with educational facilities which a generation ago were even undreamt of. The greatest of all educational aids is apparatus—for seeing is believing, in a manner that no text-book can command.

The Principal Contractors.

The following is a list of the principal contractors and sub-contractors, but is not exhaustive; for miscellaneous—but smaller—items, such as teaching appliances, were purchased from firms in almost every country in the world, including Canada, the United States, France, Germany, Austria, Sweden, etc., etc.—in fact, wherever the latest and most suitable article could be found:—

General Building Contractors—W. J. Campbell and Son, Belfast.

Ventilating and Heating Installation—Musgrave and Co., Ltd., Belfast.

Internal Plumbing—J. Lowden and Co., Belfast.

Sanitary Fittings—George Jennings, Ltd., London.

Painting—George Coulter, Belfast.

Roof Covering—Limmer Asphalte Co., Belfast.

Copper Work on Domes—Alexander McKibbin, Belfast.

Stone and Wood Carving—E. and C. Thompson, Belfast; Purdy and Millard, Belfast.

Lead Lights and Stained Glass—Ward and Partners, Belfast.

Woodblock Flooring—W. J. Campbell and Son, Belfast.

Marble Terrazzo—Ebner and Co., London.

Fibrous Plaster Work—Wright and Co., London.

Locks and Door Fittings—James Gibbons, Wolverhampton; R. Patterson and Co., Belfast.

Electric Lighting and Power Wiring—W. Coates and Son, Belfast.

Electric Lifts—R. Waygood and Co., Ltd., London.

Motors—The British Westinghouse Co., Manchester.

Intercommunication Telephones—W. Coates and Son, Belfast.

Electric Clocks—Gibson and Co., Ltd., Belfast.

Marine Boiler—Workman, Clark and Co., Ltd., Belfast.

Lancashire Boiler—J. Adamson and Co., Hyde.

Steam Pipe Installation—Combe, Barbour, Ltd., Belfast.

Superheaters—T. Sudgeon, Ltd., London.

Economisers—Clay Cross Co., Chesterfield.

Travelling Cranes—Combe, Barbour, Ltd., Belfast.

Shafting and Hangers—Millfield Foundry, Belfast.

Engineering Fittings—R. Craig and Sons, Belfast.

Petrol Motors—Chambers and Co., Belfast.

Fittings of Textile School of Art and other Departments—W. J. Campbell and Son, Belfast.

Chairs for Central Hall—Maguire and Edwards, Ltd., Belfast.

School Furniture—North of England School Furnishing Co., Darlington.

Window Blinds—Bell and Mayrs, Ltd., Belfast.

Floor Polishing—The "Ronuk" Co., Manchester.

Window Glass—John Adams, Belfast.

School Desks—Musgrave, Ltd., Belfast.

The Quantity Surveyor for the Institute was Mr. S. C. Hunter, Scottish Provident Buildings, Belfast; Clerk of Works, Mr. James Moore; Consulting Electrical Engineer, Professor Stanley, B.A., A.M.I.E.E.; Consulting Mechanical Engineer, Mr. F. D. Brown; and Builders' Foremen, Messrs. J. Johnston, J. McClelland, J. Stewart, M. Baird, W. Allen, and J. Coard.

A very interesting souvenir book in connection with the Institute, giving much additional information, and illustrated from photos by Mr. A. R. Hogg, Belfast, has been prepared by Mr. Francis C. Forth, Assoc. R.C.Sc.I., the Principal of the Institute, and is on sale at one shilling. The teaching, clerical, and administrative staff number 180, and the present number of pupils 5,000. The choice of Principal could not have been happier, and, under Mr. Forth's most efficient management, the Institute has already achieved fine results, and will yet achieve the greatest.



ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

The usual monthly meeting of the Council was held at 20 Lincoln Place, Dublin. Mr. W. M. Mitchell, President, occupied the chair, and there were also present:—Messrs. C. A. Owen, F. Batchelor, F. G. Hicks, R. C. Orpen, A. E. Murray, and J. H. Webb, hon. secretary. The minutes of meetings on the 7th, 11th, and 22nd October were read and signed.

Correspondence having been dealt with, the hon. sec. reported that there were at present five candidates for membership of the Institute, and that several others had been supplied with the necessary application forms. The scrutiny of ballot was postponed until the 7th instant.

Preparations were made for the approaching election of a new Council for 1908.

Four resolutions passed at a recent general meeting with regard to the best means of balloting, the advisability of holding a conversazione, revision of schedule of charges, and election of President, were discussed and considered.

The hon. treasurer presented a financial statement, which was approved.

A general meeting of the Institute was held at 20 Lincoln Place, Dublin, on Thursday, November 7th, 1907.

Mr. W. M. Mitchell, President, occupied the chair, and there were also present:—E. Bradbury, R. J. Sterling, J. Holloway, S. M. Ashlin, G. C. Ashlin, R. O'B. Smyth, L. H. Deane, G. L. O'Connor, R. C. Orpen, G. F. Beckett, C. H. Mitchell, F. G. Hicks, E. H. Morris, and J. H. Webb, Hon. Secretary.

The President announced that Mr. Frederick Batchelor, F.R.I.A.I., F.R.I.B.A., had been elected President for the ensuing three years.

The President also announced that Mr. L. du P. Millar and Mr. A. O'M. Lovell were elected members.



"THE LAST WORD ON ROOFING WITH THE SQUARE."

We have received a very handy little work, entitled "The Last Word on Roofing with the Square," by Laurence Tonge. The author, who describes himself as a builder and practical carpenter, tells us he has made a close study of every form of roofing, and he declares that by the use of his methods a saving of at least twenty-five per cent. in labour and materials can be effected. He says that he has never come across any book which will tell the carpenter how to cut every timber in a roof, whatever the pitch or plan, to its correct length and bevel without arithmetical calculations. This he now describes, showing many simple operations, such as the method of finding the bevel of the backing for hips, this entirely being done by means of the iron square. Some of the methods for the more common pitches are tabulated, and are extremely simple.

The little book should be of great use to carpenters and builders.

The author has made arrangements for the sale of these squares, which can be had of Robert Tonge, 107 Gladstone Road, Watford, Herts, England.

"Roofing with the Iron Square." By Laurence Tonge. London: The Chichester Press (The Colliery Guardian Co., Ltd.), 30 and 31 Farnival Street, Holborn. Price 1s.

DOULTON'S "GROUTED COMPOSITE" JOINT FOR STONEWARE PIPES.

The ordinary method of jointing stoneware pipes with Portland cement demands skill and care from the workman,

and superfluous water. A perfect ring of cement around each joint is thereby ensured; and, moreover, its presence is actually visible from the outside of the completed joint, which is an undoubted advantage. Presence of water in the trench does not impede this method of grouting.

The act of pouring in the grout displaces water inside the canvas, and cement, when inside the canvas, cannot be disturbed by water in the trench.

A characteristic of cement grout is that, unless the proportions of cement and water are accurately adjusted, the particles of cement settle to the bottom. It follows, therefore, that if thin grout is poured into a closed annular cavity in a pipe socket, the upper portion of the joint is weak and unsound. The

remedy is not to be found in using thick grout, as this is likely to choke the cavity without filling it. In the "Grouted Composite" joint, any excess of water filters away automatically through the pores of the canvas. An additional advantage is that the sealing chamber is of ample sectional area, offering no hindrance to the passage of the grout. The utility of canvas for retaining cement under water until set is demonstrated in the well-known method of sinking bags filled with concrete for the construction of retaining walls, etc.

The adaptation of this principle in the "Grouted Composite" joint has been attended with remarkable success, and promises to obviate much of the trouble and anxiety which hitherto has been associated with the construction of pipe sewers in waterlogged ground.

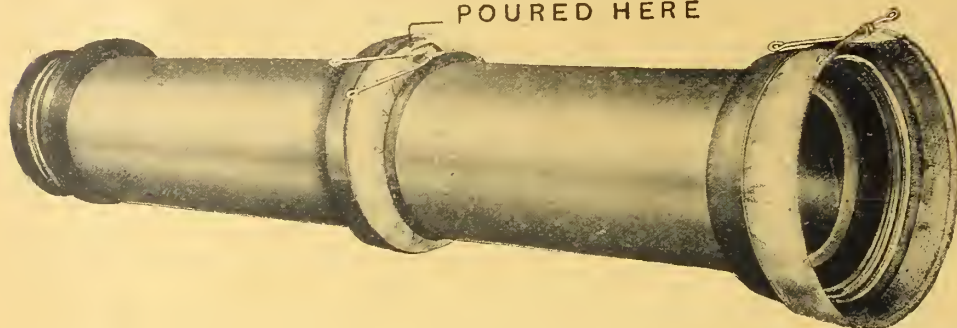
even when the trench is dry and conditions are otherwise favourable. In waterlogged ground, where sound joints are essential for the purpose of excluding subsoil water from the sewers, the conditions at the bottom of the trench are often such as to thwart every effort to make a cement joint in the ordinary manner. It is, therefore, not surprising that great attention has been bestowed upon the subject of jointing, and that many special joints have been devised with the object of ensuring satisfactory results in spite of the adverse conditions which attend sewerage work.

Messrs. Doulton & Co., Ltd., of Lambeth, London, have recently patented a joint, which they have called the "Grouted Composite" joint, and which was the subject of a recent demonstration to representatives of the Press. The demonstration included the jointing of pipes in water and the testing of jointed pipes under internal hydraulic pressure. At an internal pressure of 25 lbs. per square inch, which was the maximum pressure applied, the joints proved absolutely sound. This, of course, is far greater than any pressure stoneware pipes would be subjected to in actual work.

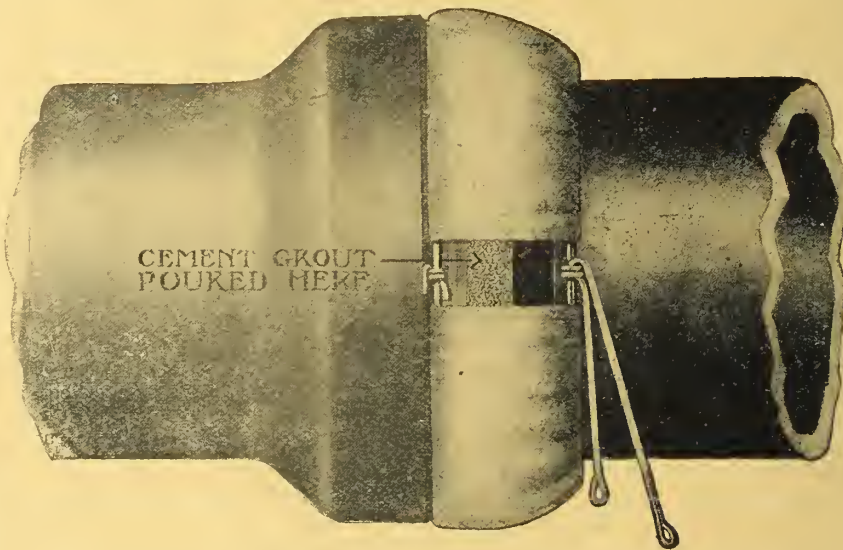
Messrs. Doulton claim for this joint that it overcomes difficulties which hitherto have been regarded as inseparable from the jointing of stoneware pipes, particularly in bad ground. It combines two distinct joints, an inner seal, formed by the contact of two bands of composition, and an outer seal of Portland cement applied in the form of grout. The inner seal consists of their well-known "Self-Adjusting" joint, which is a development of the "Stanford" joint, affording the greatest measure of security obtainable by joints of that class, and ensuring a true invert. The grout is received in an annular chamber formed by a band of canvas enclosing a space between the end of the socket of one pipe and a collar on the spigot of the adjoining pipe. The band is secured to the pipes by binding wires, operated in a manner which is extremely simple and expeditious.

The "Grouted Composite" joint is thus distinguished from other joints by the fact that the outer wall of the sealing chamber is of porous fabric, retaining solid particles of cement, and allowing the escape of air

CEMENT GROUT
POURED HERE



CEMENT GROUT
POURED HERE

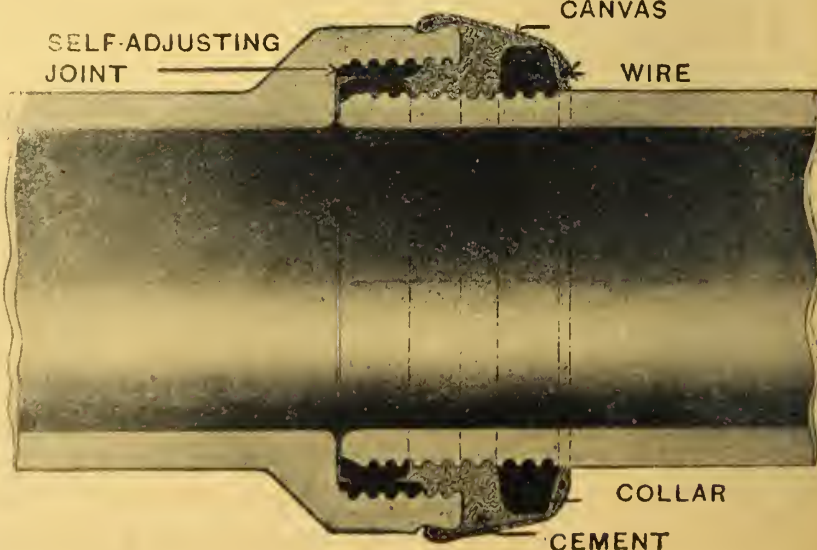


The Humphreys Memorial window in the church, Bowling Green, Strabane, was broken recently with a porter bottle by some unknown person. The window, which was erected 28 years ago by the wife of the Most Rev. Dr. Alexander and the other members of the Humphreys family to their late father and mother, Major W. Humphreys and his wife, cost £700, and depicted a scene of "The Last Supper."

SELF-ADJUSTING
JOINT

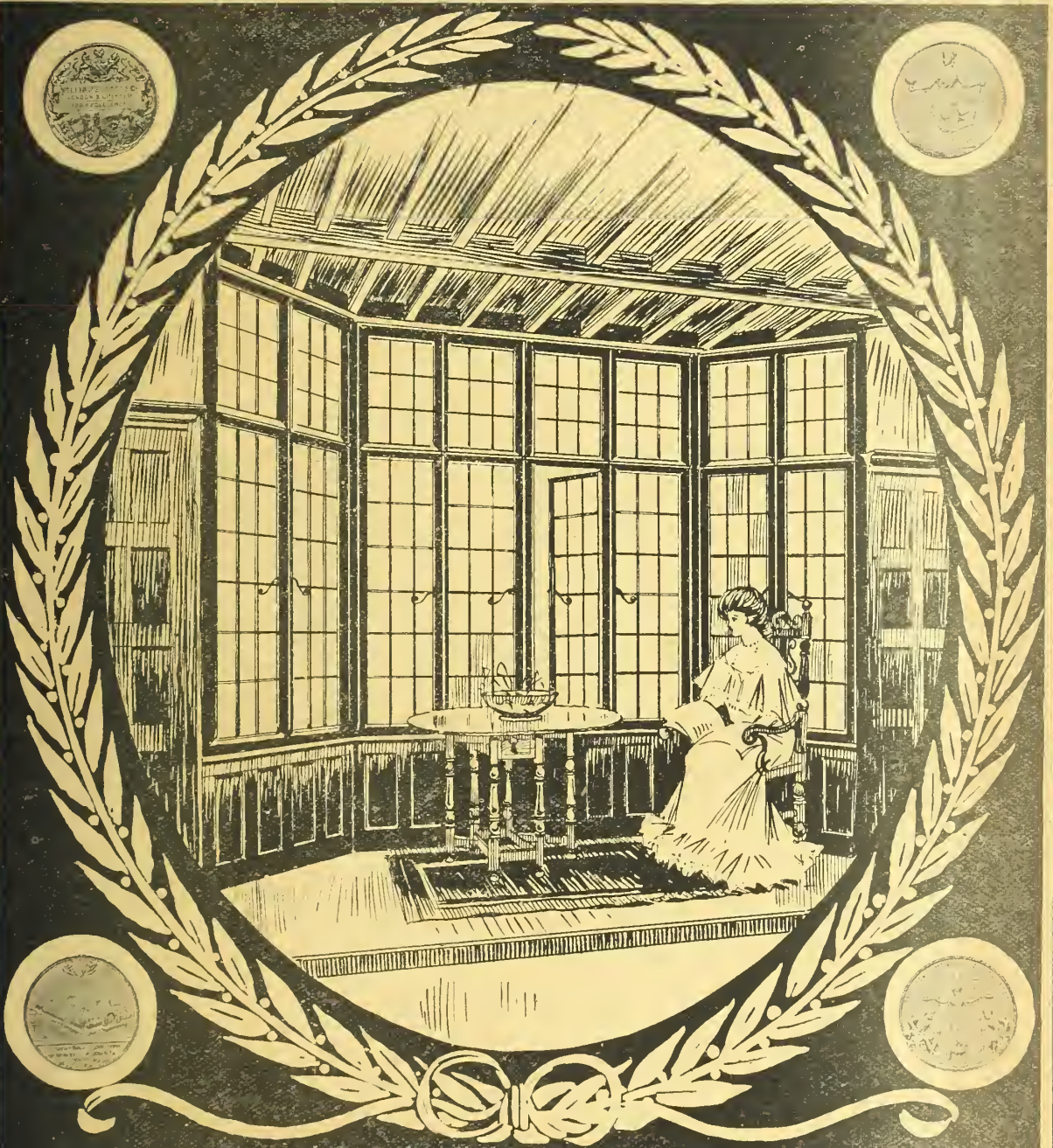
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CONTENTS.

PAGE.

Topical Touches	777
The New Technical Institute, Belfast	778
Royal Institute of the Architects of Ireland	785
Doulton's "Grouted Composite" Joint for Stoneware Pipes	786

LEADING ARTICLE:—

The Pearson Case	788
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COMMENTS:—

Sewer or Drain?	791
"No Necessity" for a Second Fireplace	791
Edinburgh Architectural Association	792
The Right Hon. Robert Young	793
Flexible Metallic Tubing	794
Imports	794
Building News	797
Reviews of Catalogues	798
Engineering Items	801
Our Illustrations	802
Institute of Civil Engineers	802
Our Southern Letter	805
The Forestry Commission	805
Law	806
Engineering News	806

THE PEARSON CASE.

The famous case of *Pearson v. the Dublin Corporation* has ended in a settlement, and one which, all things considered, may be called a fair one for both parties. A number of very important points regarding questions of law relating to contracts arose in the case, and it would have been of benefit to those entering into contracts for building and engineering works to have had them thoroughly thrashed out and judicially decided—not that any matters of startling novelty arose; the points were all old ones, which had cropped up in many previous cases of less importance. The facts of this dispute are probably so fresh in our readers' minds as to need no lengthy recapitulation, but briefly they may be recalled. The Corporation of Dublin having some years ago decided to reconstruct and extend the Main Drainage system of Dublin, upon the advice of Mr. Spencer Harty, the City Engineer, communicated with Sir Joseph Bazalgette, of London, the engineer who had been responsible for the London Main Drainage works. Sir Joseph being unable to undertake the commission which the Corporation offered him, suggested the name of his son-in-law, Mr. George Chatterton, an Irishman and a graduate of Dublin University. Mr. Chatterton, in consultation with Mr. Harty, and assisted by Mr. H. H. Hellins, prepared the scheme, Mr. Hellins becoming resident engineer in charge. Part of the scheme provided for converting the old Pigeon House Harbour into a series of precipitation tanks. To do this and make it water-tight, it was necessary to line or face the harbour wall with concrete. The sections showed the wall going down in the ordinary way to the water-line, and below that it was dotted in for a considerable depth. The contract for this portion of the work was let to Messrs. Pearson, Ltd., who, on proceeding to execute it, found that the wall did not extend to anything like the depth shown, and, in fact, rested simply upon a bed of mud, and without any foundations, with the result

that pumping operations of an enormous extent, incident upon the construction of a new and deeper water-tight wall, had to be undertaken, with a loss to the contractors, estimated by them at £35,000, which sum they claimed as extra on the contract. The Corporation repudiating all liability, legal proceedings were instituted. The Corporation had safeguarded themselves by protecting clauses in the contract, disclaiming liability for errors in drawings or specification. In the earlier stages of the subsequent litigation, some conflict arose as to the meaning of the dotted lines below the water-line, it being held by the contractors that the dotted lines implied a definite statement by the Corporation that the wall below water level existed in fact, while it was urged by the Corporation that the dotting in of the wall below water-level indicated "doubt"—doubt in the mind of the engineer as to the very existence of the wall. This suggestion, we think, like the wall itself, would not "hold water," and to all intents and purposes it gradually disappeared from the serious part of the case, though cropping up occasionally. The real fact which then remained was the question, had there been deliberate fraud by the Corporation or their engineers, fraud so palpable as to warrant the Courts in upsetting the whole contract. That was what the case, as we indicated in our observations during the earlier stages, boiled down to. Such fraud was alleged and duly pleaded when the case went to trial before the Lord Chief Baron and a special jury. Before the defence opened, the judge, with that marvellous grasp of the legal aspects of the case for which he is famous, saw that unless fraud of clear and gross character could be proved, that the proceedings were only so much waste of time and of money. He stopped the trial, and told the jury that there was no evidence of fraud to go before them. This decision of the judge was reviewed before the full Court of King's Bench, who held that he ought to have allowed the issue to go to the jury, and ought not to have deprived the contractor of the right to a jury's verdict, and the Court ordered a new trial. From this decision the Corporation appealed, and the High Court of Appeal in Ireland unanimously reversed the order of the Court below, whereupon the contractors carried the case to the House of Lords, which, in turn, restored the order of the Court of King's Bench, under circumstances fully reported in our columns, and ordered a new trial. This decision, apparently in favour of the plaintiff, was really nothing of the sort, and in no way ran counter to the Chief Baron's original determination as to the real factors of the case, but simply expressed the view that he ought to have allowed the plaintiffs to carry their allegations of fraud to completion, so as to secure a jury's verdict thereon. A new trial was accordingly fixed for last week, but upon the sitting of the Court, counsel for the plaintiff applied for an adjournment for the purpose of arranging a settlement. The following morning, Mr. Campbell, for the contractors, announced the terms agreed upon. All allegations of fraud were withdrawn, and the personal imputations upon the three engineers concerned were unreservedly taken back in the handsomest terms, as appears elsewhere, the contractor to receive £5,000 and his costs (these latter are estimated at about £10,000.) From one point of view it might, as we have said, have been interesting to fight out the issue to the bitter end, and, in addition, the matter, with all its attendant big fees, would have been good for at least ten days' work for all the lawyers and consulting engineers on both sides. Fortunately, the parties came to terms. The settlement must be regarded as a singularly fortunate one for the contractor. Once the case assumed the aspect it did, namely, that the whole and only ground and prospect of success rested upon the basis of proving fraud—fraud of the character we have indicated—it was abundantly clear that

nothing else than a complete win for the Corporation, and hopeless failure for the contractors, was, under any circumstances, possible, and they are accordingly most fortunate in getting even £5,000 over and above their costs. The only deductions to be drawn from the whole case are the confirmation of the general belief that, short of proving fraud, it is practically impossible for a contractor to recover extras under such circumstances against the will of the engineer or architect; and, secondly, it demonstrates—if demonstration be necessary—the excessive costliness of the law. The entire contract was only about £90,000, the total extras claimed £35,000, the law costs about £20,000, and after exhausting every expedient of law, and going from one tribunal to another, the matter is compromised by payment of a comparatively paltry £5,000. What an enormous amount of worry and expense could be saved in such cases by a little “give and take” in the beginning. Here clearly was a case in which the contractor—whatever his legal position—had sustained heavy loss, and was entitled to sympathy and consideration at the hands of his employers, who got the benefit of his labour. Of course it may be said, and doubtless is true, that such things are part of the ordinary risks of building and engineering contracts, and that men who enter into such must abide thereby; but an unanticipated loss of £35,000 on one item alone of a £90,000 contract, incurred in making good what was certainly at the least an error of judgment on the part of the engineers, cannot be counted as an ordinary business risk. The Pearson case is one of those which rather tends to give force to the demand of builders that bills of quantities should be made a part of the contract, and all deviations, whether against or in favour of the employer, measured and paid for at the completion of the work. There are practical difficulties in the way of the universal acceptance of that principle which would introduce an element of uncertainty as to the ultimate expense, that might be harmful and deterrent to enterprise in the case of those small building contracts that constitute the mass of such transactions. The possibility, however, of a contractor losing £35,000 on an item of a £90,000 contract, or more than a third of the whole total, demonstrates fairly, we think, the necessity for some change of practice in this connection, though not necessarily involving the universal acceptance of quantities as part of a contract, though that practice prevails in Scotland; we think it ought to be possible to devise some system, which, while safeguarding small enterprises from the danger of serious interference, would protect contractors against such a loss as, to all intents and purposes, was sustained by Messrs. Pearson, because, although they get nominally £5,000 in addition to their costs, they will, in reality, receive nothing of the kind, as their bill of costs will be rigidly taxed, and nothing like the large fees paid to counsel and to the company of consulting engineers retained, will be allowed, so that a considerable slice may be cut off the nominal £5,000.

The Pembroke Urban Council, on Monday last, again, by the chairman's casting vote, rescinded the previous resolution of the Council, declining to grant the application of the Committee of the International Exhibition for leave to hand over the concern to a syndicate, to be re-opened next year. As, however, Lord Pembroke, who is the absolute owner of Herbert Park, has pronounced his intention of exercising his veto on any such proposal, we assume the demolition of the structures will begin forthwith. While there are, no doubt, some objections to the re-opening of the Exhibition next summer, we can see no objection to the erection and permanent maintenance of a large concert hall and winter garden, both badly wanted in Dublin, whilst a high-class summer restaurant would, we believe, be appreciated by the citizens of Dublin and of Pembroke, and be entirely free from all objection on the part of residents. Such buildings might be a valuable source of revenue to the township, which is at present sadly overtaxed.

COMMENTS.

Sewer or Drain ?

Our readers will remember that the IRISH BUILDER was the first journal to demonstrate the true facts of the law of “Sewer” or “Drain,” as defined in the Public Health Act, a good many years ago, and to systematically report and comment upon cases relating thereto, and that we published several articles by Mr. W. J. Roberts, solicitor, setting forth and explaining all the leading decisions on the point. Mr. Roberts having made a special study of the subject, the information thus conveyed was of practical use, as we are aware, to many of our readers; and several sanitary authorities learnt some facts of law of which they were previously ignorant.

We see now, by the current daily Press, that the Corporation of Dublin, in promoting a new local “Improvement Bill,” mention, as portion of clause 7 of the “Objects of the Bill” as set forth, the following sentence: “The maintenance of combined drains.” We have not yet seen the draft of the Bill, but we presume the clause in question is intended to relieve the Corporation, as sanitary authority, of their obligation to maintain drains or conduits draining more than one house belonging to the same owner, and to fix clearly upon the individual owners the liability for the maintenance of “combined drains.” The sanitary authorities, possibly, have some grievances in this matter, from which they may be entitled to relief, but owners of property would be well advised to closely examine the terms of the proposed clause, and satisfy themselves that there is nothing therein contrary to their reasonable interests. It would be necessary, moreover, to ascertain if the clause is to be retrospective or not. It is conceivable that, if retrospective, a change in the law might work out unfairly to owners, who possibly in the past may have suffered from exacting demands upon the part of the sanitary authority.

“NO NECESSITY” FOR SECOND FIREPLACE.

With reference to the erection of a number of labourers' cottages under the last scheme, and for which a number of tenders had been received, a letter was read from the Local Government Board, at Wednesday's meeting of the Rathkeale District Council, suggesting some slight alterations in the plans and specifications of the houses, and pointing out that as an extra fireplace in the bedroom would be of small cost, it should be provided, and the plans and specifications should be amended accordingly.

Mr. M'Coy—Does that apply to the tenders we are going to open?

The Clerk—It does, sir.

Mr. M'Coy (to the Engineer)—What would be the probable cost of the second fireplace?

Mr. Hartigan (Engineer)—I don't see how you can put it down under £3 or £4.

Mr. M'Coy—Can we refuse to take that portion of their report?

Mr. Hartigan—Of course you can, sir.

Mr. M'Coy—Then I propose to refuse the second fireplace. There is no necessity in the world for it.

Mr. Hartigan gave it as his opinion that there was no necessity for the second fireplace, and Mr. M'Coy's proposition was agreed to.

The tenders for the erection of the cottages were then dealt with, and in consequence of the financial facts brought forward before the Council by the Clerk in his report, it was decided that no tenders for cottages be accepted that day that exceeded £110 per cottage.

Several tenders, in which the amounts varied from £111 to £133, were rejected, and orders were made to re-advertise, cost in any case not to exceed £110 per cottage.

About a dozen contracts were declared, the prices being from £97 to £110. A large number of tenders for the erection of acre and half-acre fences were accepted, from 6s. per perch for sod, to 15s. for stone fences, higher tenders—except a few cases where quarries were at a distance—being rejected.—Limerick Paper.

May we ask: What is the use of tuberculosis exhibitions or humanitarians' lectures? In sickness, a poor labourer's wife must have no fire!

EDINBURGH ARCHITECTURAL ASSOCIATION.

The Right Hon. Lord Kingsburgh, K.C.B., LL.D., Lord Justice-Clerk, on the 4th inst., in the Royal Scottish Society of Arts Hall, Edinburgh, delivered the opening address of the session of the Edinburgh Architectural Association. Mr. Hippolyte J. Blanc, R.S.A., President of the Association, presided, and among others present were:—Sir Henry Littlejohn, Sir R. Rowand Anderson, Sir James Russell, Professor Baldwin Brown, Mr. W. D. Mackay, R.S.A.; Mr. D. Robertson, A.R.S.A.; Mr. Thomas Ross, Mr. H. O. Tarbolton, past president; and Mr. W. T. Oldrieve.

Lord Kingsburgh, who spoke of "Incongruity and Disfigurement," said he assumed they would all agree that the architect, if he was to be worthy of his profession, must be a lover of the beautiful both in Nature and in Art, and, further, that it would be conceded that every failure to consider congruity was in greater or less degree failure to conserve or cultivate the beautiful, and was a step in the direction of disfigurement. They would perhaps be amused with his first illustration of a building put where it ought not to be, as there was no real question of architectural skill involved. There might have been, for the place he spoke of was Dunsappie Loch, at the back of Arthur's Seat. He remembered well that the late Prince Consort—who had many virtues, but of which æsthetic taste was not one—had every preparation made for the erection of a verandahed refreshment restaurant at the east end of Dunsappie Loch. The stones for the building were actually cut and laid down on the ground. Let them be thankful that there was a sufficient revival of taste in, by that time, much disfigured Edinburgh to cause an irresistible outcry against the proposal. The Prince Consort was, like most Germans, accustomed to hold a lager beer-house as a necessary architectural improvement to a scene of natural beauty. (Laughter.) He (Lord Kingsburgh) once took a German Professor for a walk up Arthur's Seat, and when he expected him to say something complimentary, the Professor turned to him and thus delivered himself in German—he translated literally—"My sir, it is to me a thing altogether outside understanding how that, in so near neighbourhood of a so great city, things should be in such a state of waste and desolation left."

But though Albert the Good could not succeed in erecting his kucip there, yet some years later a building was put up at Dunsappie, and there it still stood, to the disgrace of King, Lords and Commons, and every inhabitant of Edinburgh. He referred to an erection for the storing of tools for a few weeks' work per annum. Going a little farther afield from Dunsappie, they came to another instance of incongruity, a specimen of a too common blunder made about a century ago, when pretentiousness was mistaken for style. An ancestor of the Duke of Abercorn desired to have a dwelling at Duddingston. His architect put down his building with its face to the east wind, and selected as his idea for a Scottish mansion a design suitable for the sunny south. That was not all. The same architect placed at the entrance of the avenue from the road a gigantic three-arched gateway. This grand Renaissance gateway, with its imposing arches, which, if it were the gate of a French chateau, would have ten-feet walls going out from it surrounding the park, stood alone, with not a square foot of stonework. The whole arrangement was a mixture of obtrusive pomp and mean shabbiness, an error of expensive display, producing a ludicrous incongruity. (Laughter.) There were more such cases within driving distance of Edinburgh. In city architecture one found also too many specimens of incongruity leading to disfigurement. What was their glorious street, probably unequalled in the world as regards situation, but a flat-faced mile of unrelieved masonry, which many tenement buildings of to-day would put to shame. It never seemed to have occurred to those who built Princes Street and the adjoining streets that so fine a face as the south side of the valley called for consideration when the north slope had of necessity to be appropriated for building.

To people to-day the earlier buildings on the Mound were almost as inconceivable as it was to them to know that the corporation of an earlier day deliberately made up their minds to build a south side to Princes Street, a proceeding which it was not too much to say would have irretrievably disfigured Edinburgh æsthetically, and probably ruined it also as a place of resort for thousands from elsewhere. The occasion was one in regard to which—not from a political point of view—every citizen then and since and now could say from his heart, "Thank God, we have our House of Lords;" for it was only by a judgment of that House that Edinburgh was saved from such a calamity. Even as it was, Edinburgh did not escape scatheless from the proposed vandalism. The buildings on the site of the present North British Railway Hotel were erected before the House of Lords' decision, and presented their hideous backs to three or four generations. Had these never been built it

was not improbable that neither the new Post Office nor the Railway Hotel would have been placed where they are, blocking out the view of Arthur's Seat and the bay beyond. On the other side of the valley much evil was done. An unpardonable mistake was made when the West End of Edinburgh was built, in neglecting to use the high bank of the Water of Leith as the front for a terrace, instead of placing the rubble backs of Moray Place and Ainslie Place as a setting to a beautiful natural scene.

But perhaps the most fatal concession to the incongruous in Edinburgh was to be found in another terrible and irremediable outrage upon the beauty of the city. Where was taste, where was forethought, where was good sense when the valley between the Old and the New Towns was permitted to be invaded by the railroad? It was vain to cry over spilt milk, but surely one might indulge in a pleasant dream of what might have been. Looking over the dreary acres of dirty glass roofing, one might have been able to see, instead, a lovely stretch of garden reaching from St. Cuthbert's to the east of Calton Hill, the Nor' Loch turned into a fine sheet of water, a beautiful drive between the water and the castle, passing the Mound by a tunnel, and carried on westward by a boulevard road out to the front of Holyrood, round the King's Drive, and by another boulevard through the then practically open ground from St. Leonards to Melville Drive, and then, cutting a line through West Port, round the west of the Castle Rock. It was recorded of a worthy citizen, the late Adam Black, whose statue was supposed to add to the beauty of the terrace of Princes Street, that, as Lord Provost, he solemnly delivered himself thus in the town council: "Nature has formed this place for a railway station." A more cruel libel on poor Nature never left the lips of man. His statue should be inscribed on its base—"This was a worthy man who unconsciously took the name of Nature in vain, and in her name did what the visitor sees below. He is gone. Don't revenge yourselves on his innocent effigy." The Nelson Monument on Calton Hill was an instance of the evil that men do living after them.

This placing on end of a great round rolling pin, with sham battlements at the top, on the summit of a hill, was of a piece with another too common absurdity which disfigured many a scene—the square-pointed obelisk. Lord Kingsburgh afterwards spoke of incongruities by something done after buildings had been erected. Dealing in this connection with the alteration of churches and other buildings, he said that terrible things had been done to the great cathedrals and churches by funereal marbles and brass plates, the noble or the wealthy Christian being commemorated by representations of the front of a sham sarcophagus or a vase and veil copied from some heathen tomb, while no good but poor, humble disciple had any tablet erected to his memory. Speaking of the general amenity of the city, he said the town council were offenders in many ways. It seemed not to be thought an outrage to stick up a black post, with a black square on the top of it, in East Princes Street Gardens, to tell people that 2d. was the charge for Walter Scott's monument, and 3d. the charge for Nelson's monument. He never saw anyone read what was on it, yet there it was, a mean vandalism for a mean purpose, an ugly splash thrown in upon the view beyond, utterly incongruous with the surroundings, and all for twopences and threepences. But worst of all, there had lately been put up on the top of the Waverley Market an indescribably ugly erection, flanked by flagstaffs, to enable shows to advertise themselves by an offensive transparency. No one, if he had thought for a moment of the surroundings, would have put up such an abomination. But it must come down. And what about the placards which the Royal Scottish Academy stuck up with battens on the National Gallery railing? The Architectural Association themselves not many months ago put up two placards between the Greek pillars of the Royal Institution. In the latter part of his address Lord Kingsburgh dealt with what he called the dreadful practice of caging up buildings with high and often ugly railings. He spoke of what had been done in the removal of railings, and said he hoped to live to see St. Andrew's, St. George's, St. John's, the south side of the High School, and the front of the Royal Museum cleared in the same way. If the contemptible fences on Calton Hill were removed, people would be surprised at the open effect it would give as the top of the slope was reached in ascending the hill.

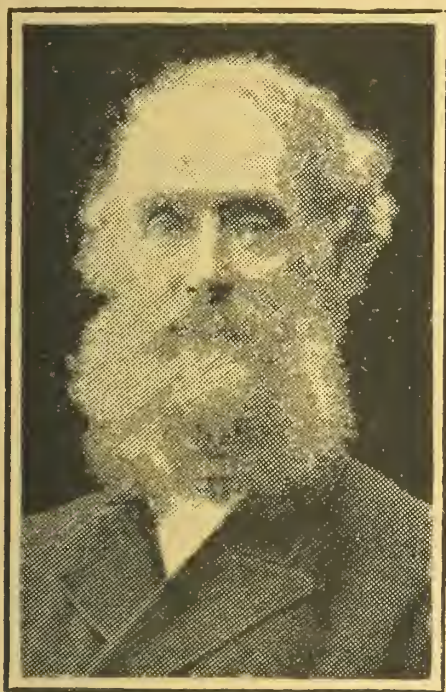
On the motion of Sir R. Rowand Anderson, seconded by Mr. W. T. Oldrieve, Lord Kingsburgh was accorded a hearty vote of thanks.

The Chairman, speaking of a reference which Sir R. Rowand Anderson made to the acquisition of an old house and grounds at Holyrood by private owners, explained that the Government did their best to secure the ground, but that through the competition of a syndicate the price was raised to more than twice the sum originally offered.

The proceedings closed with a vote of thanks to Mr. Blanc for presiding.

THE RIGHT HONOURABLE ROBERT YOUNG.

The announcement that the honour of a Privy Councillorship has been conferred upon Mr. Robert Young, J.P., head of the well-known firm of Messrs. Young and Mackenzie, architects and civil engineers, will afford general satisfaction. Mr. Young is one of Belfast's oldest and most highly-esteemed citizens. Born at Whiteabbey nearly 86 years ago, he is descended from Scottish ancestors who settled on the Hertford estate, adjacent to Lough Neagh, early in the seventeenth century. His father, the late Mr. James Young, after serving his apprenticeship to his uncle, Mr. William Young, a bleacher at Glenavy, commenced business in Belfast as a wholesale warehouseman in 1795, founding the firm which is still in existence under the style of Messrs. Young and Anderson, Donegal Street. The new Privy Councillor was born on the 22nd February, 1822, at Abbeyville, Whiteabbey, and received his early education in the old Belfast Academy, under the principalship of Rev. R. J. Bryce, LL.D., amongst his school companions being a future Lord Chancellor (the first Earl Cairns) and Sir Donald Currie, G.C.M.G. Subsequently he proceeded to Glasgow College, where he had Professor James Thomson, father of Lord Kelvin, as his mathematical teacher. On returning to Belfast he served his indentures to the late Sir Charles Lanyon, who was then County Surveyor of Antrim, and he was his chief assistant in the carrying out of several important works,



The Rt. Hon. ROBERT YOUNG, P.C.,
Architect, Belfast.

notably the construction of the Belfast and Ballymena railway. Afterwards he removed to the South of Ireland, and for several years he served as engineer to Mr. William Dargan, the well-known railway contractor, while the railway to Athlone was under construction. Early in the fifties he came back to Belfast, and began to practise as an architect and civil engineer, being joined in partnership some ten years later by Mr. John Mackenzie, J.P., whereupon the firm became known as Messrs. Young and Mackenzie. The success which has attended the firm may be attributed in a large measure to the founder's enterprise and ability. Amongst the buildings for which they prepared plans mention may be made of the new Assembly Hall in Fisherwick Place, the Scottish Provident Buildings, the Belfast Royal Academy, Cliftonville; the Ocean Buildings, Donegal Square East; Messrs. Robinson and Cleaver's establishment, and numerous churches and manses throughout Ulster. In addition to these works may be added two Fire Brigade Stations and the City Fever Hospital, Purdysburn, this latter group of buildings opened in August, 1906, by the Lord Lieutenant. Mr. Young was also associated with the new Sanatorium for Consumption, which the Belfast Poor Law Guardians have recently erected at the "Abbey," formerly the residence of the late Sir Charles Lanyon, F.R.I.B.A., Whiteabbey, Belfast. Amongst his hobbies is painting in water colours, and he was a member of the Belfast Art Coterie in the early sixties, which included the late Dr. James Moore, R.H.A.; Mr. A. U. Stannus, Dr. Pilean, and other well-known artists. He is chairman of

the Lagan Navigation Company, and is a Justice of the Peace for the County of Antrim. It may be mentioned that he is the uncle of the Right Honourable James Bryce, until recently Chief Secretary for Ireland, and now British Ambassador to the United States of America. His only surviving brother is the Honourable Charles Young, for some years Minister of Public Works, Melbourne, Victoria. Another brother, the late Mr. William John Young, who was an extensive traveller, was the first Englishman to ascend Mont Blanc, and being proficient in the early processes of photography, he took many views of the Crimea during the Russian war, as well as of other Eastern places at that time rarely accessible. Mr. Young married the only daughter of the late Rev. Robert Magill, M.A., of Antrim, and this lady died in 1870. He has two daughters, married respectively to Dr. Richard Honeybourne, of Idle, Yorkshire, and Mr. Henry H. Graham, J.P., Belfast, and his only son, Mr. R. M. Young, F.R.I.B.A., J.P., is a partner in the firm of Messrs. Young and Mackenzie, and the author of several antiquarian works, including "The Town Book of Belfast."

A NEW IRISH FLOORING SYSTEM.

We have recently received particulars relating to a new fire-proof floor made by the Irish Armoured Tubular Flooring Co., Ltd., Cooke Street, Belfast. It is claimed for it that it is cheap, strong, light, and effective. As regards cost, the patentees say the high price, as well as the heavy weight, of the ordinary concrete or reinforced concrete floor has rendered its use prohibitive for most buildings, and that architects and builders have long sought a lighter and cheaper system. The patentees claim that their floor can be constructed at a remarkably low figure, while its weight is no more than half that of the ordinary concrete floor.

The system is an armoured tubular floor of concrete reinforced with steel, and composed of three different parts: (a) the web; (b) the tubes; (c) the top layer. The webs are made of concrete, in lengths up to 30 feet, and are armoured internally with a steel bar; the tubes, in lengths of eight inches, are made of concrete, composed of ash and cement. Both webs and tubes are usually made in the factory, but they can be made on the ground if there is sufficient room.

No centering is required with this system; the first operation being to place the webs in position, and directly afterwards the tubes are dropped in between the webs. When finished, the webs take the whole of the tensile strains, and the top part of the webs with the concrete layer take the compressive strains.

The patentees claim that this is an absolutely fire-proof floor—it is standardised in four depths, viz., 7 ins., 9 ins., 11½ ins., and 14 ins., for spans up to 30 feet to carry safe loads of ½ cwt. to 2½ cwt. Very satisfactory tests are quoted in the pamphlet before us. A very strong claim made on behalf of this floor is that the concrete webs being manufactured on benches, and not *in situ* on centering or horsing, enable the reinforcement to be placed exactly where it is wanted; thus, say the patentees, it becomes absolutely reliable.

The system is largely in use on the Continent, one million square yards being laid in Germany during the past two years; in the great Municipal Hospital at Cologne, alone, 20,000 square yards have been laid.

There should be a great future before this floor, we believe, and, further, the fact that it can be made locally is a great matter in its favour.

One of the tests we have referred to was made under the auspices of the British Fire Prevention Committee, and stood the test so successfully that classification known as "Full protection" was granted.

THE OGHAM STONE AT ACHASCREBACH, COUNTY TYRONE.

Mr. J. J. Doyle, the well-known Gaelic scholar, having occasion to be in the neighbourhood of Greencastle (Sheswinshule), recently paid a visit to the stone. It is about a mile and a half from Greencastle Catholic Church, on the right bank of the Bruaghderg, and about a quarter of a mile from the stream itself. The general name of the townland is Aghascrebagh, but the particular part on which the stone stands is called by the people Cnoc a Chartha, the hill of the pillar-stone. A field or two away, also in Aghascrebagh, is a large, rough, unincised standing stone, from 8 to 10 feet high; and about 300 yards from the pillar stone, and on the opposite side of the road, is an ancient graveyard nearly circular, not unlike Rolignamon (Roilg-na-mban), near Carrickmore.

FLEXIBLE METALLIC TUBING.

We are favoured with a couple of illustrated pamphlets dealing with "Flexible Metallic Tubing," which has proved to be one of the most important of modern inventions. It furnishes manufacturers with a reliable and practically indestructible substitute for rubber hose, the many disadvantages of which are entirely absent in the metallic tube. The latter is, for instance, capable of carrying steam at all pressures, even in special cases up to 300 lbs. per square inch. It can also be used with advantage for oils, gas, compressed air, and hydraulic purposes, and is admirably adapted for engineering work of every description. Nothing is more destructive to rubber than alternating extremes of heat and cold, whereas the flexible metallic tubing is positively unaffected by such changes, and remains flexible at all temperatures. It is also proof against the attacks of vermin or insects, and will thus stand exposure to any kind of weather and every variety of climate. An important consideration in connection with its use is that it does not kink or crush, and thus it always delivers up to its full capacity, giving a larger service than rubber, linen, or leather hose of equal sectional areas. With these advantages it is not surprising that flexible metallic tubing has come into use in all parts of the world, and for a great multiplicity of purposes. It has proved equally serviceable in the extreme heat of the Indian summer and under the intense cold of Klondyke. Most of the great railway companies employ it for the conveyance of steam, hot water, gas, etc.; and oil companies, paint and varnish makers, refiners, etc., find it invaluable for the distribution of liquids which speedily attack rubber. Being non-flammable, flexible metallic tubing is extensively employed by gas companies and gas consumers throughout the world. In the case of fires in theatres it has remained capable of supplying gas after being exposed to the action of the flames. It also possesses great strength, having been found to be uninjured after cart wheels had passed over it, a fact which points to its use for temporary purposes by contractors, builders, and others. Owing to recent improvements it has become possible to supply pipes of almost every size up to 8 ins. in diameter, and special qualities are manufactured for extremely high pressures up to 2,000 lbs. per square inch. It will be evident to our readers that, possessing such qualities, it would be almost easier to specify the purposes for which this tubing is not suitable than those to which it has been successfully applied. To even indicate the latter would be quite beyond the space at our disposal, and we must, therefore, refer our readers to the illustrated particulars published by the manufacturers, who are the United Flexible Metallic Tubing Co., Ltd., 112, Queen Victoria Street, London, E.C.

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IMPORTS.
Port of Dublin.

October 30th—Per Syren, from Portmadoc, 90 tons slates, T. Archer. Per Prosperity, from Carnarvon, 80 tons slates, R. Martin and Co. Per Lady Hudson-Kinahan, from London, 1,100 sacks, cement, A. Agnew; 1,000 do., do., T. Dockrell, Son and Co., Ltd.; 700 do., do., R. Martin and Co.; 700 do., do., W. and L. Crowe, Ltd.

October 31st—Per Belfast, from Baltimore, 114 pcs. oak, 191 bbls. poplar lumber, 217 tons roofing slates, to order. November 2—Per New Design, from Bridgwater, 106 tons bricks, W. and L. Crowe, Ltd.

November 4th—Per Dinorwic, from London, 270 tons cement, W. and L. Crowe, Ltd.

November 5th—Per Inishowen Head, from Quebec and Montreal, 520 pcs. firwood, sawn, 44,638 pcs. spruce deals, to order.

November 6th—Per City of Cologne, from Antwerp, 64 cases window glass, J. Arigho; 24 do., do., Wm. Martin, Sons and Co.; 11 do., do., Stocks, Goldeckee; 36 do., do., T. Dockrell, Son and Co., Ltd.; 6 do., do., J. A. Meyer, Ross and Co.; 20 do., do., Brooks, Thomas and Co., Ltd.; 2 do., do., H. Sibthorpe and Son; 797 steel joists, to order; 4 cases plate glass, to order. Per Lady Martin, from Londonderry, 1,500 sacks cement, T. Dockrell, Son, and Co., Ltd.

November 7th—Per Winga, from Goteborg, 1,733 pcs. deals, 6,350 bbls. laths, to order. Per Ellie Park, from Connah's Quay, 135 tons bricks, Brooks, Thomas and Co., Ltd.; 20 do., do., J. C. Parkes and Son.

November 9th—Per Atalanta, from Rouen, 400 bags plaster, to order. Per Louise, from Bordeaux, 149 tons slates, T. Archer.

November 12th—Per Elidir, from Middlesboro', 400 tons cement, J. P. Corry and Co.

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Shercock.—The much-needed work of enlarging and repairing Shercock Catholic Church will be commenced soon. The architect is Mr. J. J. McDonnell, J.P., M.R.I.A., Belfast.

BRITISH CANALS.

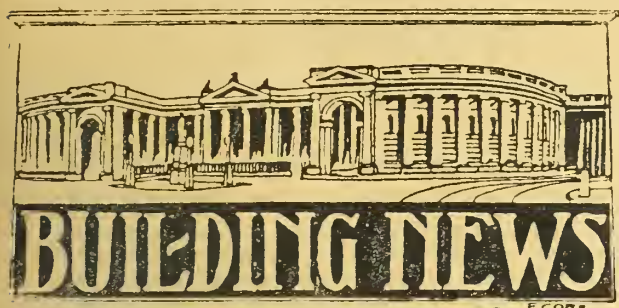
In a communication to the *Annales des Ponts et Chaussées*, M. Q. de Rochemont, *Inspecteur-Général des Ponts et Chaussées*, gives a brief historical review of the canal systems of Great Britain and Ireland, and a very clear statement of their present condition. The author points out that the existing situation involves grave inconveniences owing to non-uniformity of gauge to the lack of co-ordination and of centralisation in the management of various routes, to the great number of independent administrations each with its special staff, to the increased freights caused by the extra cost of multiple administration, to the obligation imposed upon traders and carriers of treating separately with each of the administrations, and to the possession of various canals by railway companies. These admitted drawbacks will probably appeal very strongly to our neighbours in France as sufficient reason for the languishing state of inland navigation in the United Kingdom. M. de Rochemont concludes with comprehensive tables, prepared from the Board of Trade Returns for 1898, stating the length of waterway, the number of locks, the maximum dimensions of boats able to pass through locks, the volume of traffic, gross receipts, expenditure, and net revenue for each navigable waterway of the United Kingdom. He gives also particulars concerning towpaths, lifts, bridges, tunnels, reservoirs, and methods of haulage. The Royal Commission on Canals and Waterways have already obtained some useful information concerning inland navigation on the Continent. Probably this could be usefully supplemented by the evidence of a few expert witnesses from France, Belgium, Holland, and Germany.—*The Builder*.

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THE STONES OF IRELAND.

The Chairman of the House Committee (Alderman Healy, J.P.), presided at the Charleville Mall Public Library on Wednesday night, when Professor Grenville Cole, of the Royal College of Science, delivered his lecture on "Geology." The lecture dealt with the "Foundation Stones of Ireland," and the manner in which Professor Cole treated his subject, avoiding all technicalities, and explaining in language intelligible to the "man in the street" the process of formation of the limestones, sandstones, granites, and marbles of Ireland, was followed with close attention by his audience. The lecture was illustrated with a large number of views of the Dublin Mountains, Dalkey, Killiney, public buildings in the city, the Donegal Highlands, etc., which added greatly to the interest in the lecture. At the end of the lecture, a vote of thanks, proposed by the chairman, was carried by acclamation.

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Travellers on the main line of the North-Eastern Railway to the North will have noticed a pretty church a few miles before entering the Gateshead and Newcastle stations and close to the railway. This was rebuilt in 1758, and the tower in 1821, and the chancel afterwards by the first Earl of Ravensworth. Now a new clock, with two large external dials, chimes and bells, have been added by the Countess of Mount Edgcombe as a memorial to the late Earl of Ravensworth. The work has been carried out by Messrs. Wm. Potts and Sons, Ltd., clock manufacturers, of Leeds and Newcastle-on-Tyne, generally from the late Lord Grimthorpe's designs and plans.

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After years of great anxiety, unwearied diligence, and hard work, the beautiful Church of St. Joseph's, Clifden, which was re-opened on Sunday last by the Archbishop of Tuam, may be said to have now received the final touches, and at last to have reached completion. For months past, under the supervision of Mr. R. M. Butler, Architect, Dublin, very many substantial improvements have been effected. Amongst these must be reckoned the pointing of the whole roof with mastic cement, the studding and covering the whole interior walls with fibrous plaster, the erection of three magnificent marble altars, the decoration of the church, and the putting in of six additional stained glass windows, a new pulpit, unique in design and chaste in execution, the base being Connemara marble and the top carved oak; and last, but not least, the heating and lighting of the sacred edifice. The work on the roof was seen to by Messrs. Dockrell and Co., South Great George's Street, Dublin; the fibrous plaster work was by Mr. John Ryan, Upper Abbey Street; the decoration and stained glass windows were by Messrs. Clarke and Sons, North Frederick Street; the side altars were supplied by Messrs. Earley and Company, Camden Street; the carved oak pulpit by Moonan Brothers, Dublin; its green Connemara marble base by the Galway Granite Company, and the heating and lighting by two Belfast firms, Musgrave Brothers, Ltd., and the Sunbeam Acetylene Company. The reredos and statues of the high altar were completed by Mr. Patrick Tomlins, Dublin.—*Freeman's Journal*.



Belfast.—The surveyor has been instructed to prepare sketch of alternate plan with estimate, for proposed abattoir on the Stewart Street site, such sketch to show equal accommodation to that provided in the original scheme, and to be of a building covering about one-quarter of the ground space of the one-storey building proposed.

Blackrock.—The following tenders were received in connection with new dressing room, additional lavatory accommodation, and new sanitary block for the Meath Industrial Schools, now in course of construction:—E. W. Warren, £642; James Pile, £620; J. and R. Thompson, £570; J. and P. Good, Ltd., £550; James Allen, £475 (accepted). Mr. George F. Beckett, M.R.I.A.I., is the architect.

Caledon.—A fine new National School is now all but completed in the village of Caledon. Messrs. McCann and Sons, Ballymena, are the contractors.

Cappoquin.—During the summer was commenced at Cappoquin, Co. Waterford, the erection of a bacon factory, and the building is now nearing completion.

Cavan.—A special meeting of the Cavan Urban Council was held for the purpose of considering a letter from the Local Government Board on the subject of the proposed Town Hall. The Town Clerk (Mr. T. McGuinness) read the letter referred to, which stated:—The L.G.B. for Ireland have had before them the further plans, etc., relating to the application of Cavan Urban District Council for sanction to a loan for the purpose of erecting a Town Hall and constructing a new street, and the Board desire to express their sanction to a loan of £3,500 for the purpose in question in pursuance of Section 237 of Public Health Act, 1878, repayment to be spread over a period of 30 years, the first instalment of loan to be £1,000. Mr. Kennedy moved, and Mr. Brady seconded, the following resolution, which was unanimously adopted:—“That our Clerk take all necessary proceedings to apply to the Commissioners of Public Works for the purpose of obtaining the loan for the erection of Town Hall and making of a new street as sanctioned by the L.G.B. in their letter.

Clones.—At the monthly meeting of the Clones (No. 1) Rural District Council, Co. Monaghan, Mr. John Smyth, J.P. (Chairman), presiding, in the course of discussion regarding cottages, the chairman said he would be strongly in favour of adopting the Local Government Board's first prize model cottage for the new scheme. The Clerk—Mr. Smyth has put that forward at an estimated cost of £110 for building it, but our engineer (Mr. Geoghegan) says it can't be done under £150; that is, the building of the house alone. The Chairman remarked that if it was £1 or £2 over the £175 he did not believe the Local Government Board would stand in the way. The Clerk said that Mr. Murphy had told him that the man that put up the cottage in the Dublin Exhibition for show was willing to put them up anywhere for £125 each. In reply to Mr. Maguire, the Clerk said the land and other expenses would cost about £30. The Acting-Clerk said that the Council had borrowed at the rate of £205 a house for the cottages in the other scheme, and they were in debt. The Local Government Board returned the plans of the Council's architect (Mr. Geoghegan) for the new cottages, stating that before they could sanction same some alterations would have to be made, as one of the rooms did not contain the necessary 900 feet of air space. The Council decided to forward the plans and other documents connected with the new scheme to the architect, and ask him to make the alteration suggested by the Local Government Board.

Cork.—The Guardians of the Cork Union have received tenders for alterations and repairs of the Shandon Street Dispensary.

Cootehill.—Cottage Contracts.—At the monthly meeting of the Cootehill (No. 1) Rural District Council, Mr. James O'Reilly, J.P. (Chairman), presiding, the following tenders were accepted for the erection of labourers' cottages:—Lettermore—Mr. James Cassells, Lisnageer, at £147 17s. Corntober—Mr. Thomas Fairbairn, Annahard, at £136. Aghadreenagh—Mr. Thomas Brides, Treho House, at

£139. Kilnacross—Same, at £134 17s. Drumeena—Same, at £134 9s. Greaghgibney—Mr. Hugh Denning, Cliffrina, at £123. Lisbaduff (2)—Mr. Thomas Fairbairn, at £150. Rakane—Same, at £136. Cliffrina—Mr. Terence Cooney, Tullyinchon, at £134. The Council decided to re-advertise for the building of cottages in five other townlands, as the tenders received exceeded £150, the amount of the engineer's limit.

Castleblayney.—The Castleblayney Rural District Council have made an improvement scheme under the Labourers Acts for some fourteen electoral divisions of the Union, at an estimated cost of £31,188.

Dublin.—A portion of the premises of Messrs. Booth Bros., Stephen Street, is about to be reconstructed according to the designs of Mr. Geo. F. Beckett, M.R.I.A.I. It is expected the work will be commenced early in the New Year. The following tenders have been received in connection with the work:—C. J. Crampton, £3,830; Collen Bros., £3,600; T. Pemberton and Son, £3,590; S. H. Bolton and Sons, £3,500; J. and P. Good, Ltd., £3,450; James Pile, £3,400; H. and J. Martin, £3,170; J. and R. Thompson, £2,880 (accepted).

Messrs. Dunlop are at present building a new boiler house and drying rooms at their laundry and dye works, Mount Brown, Dublin, from plans prepared by their architect, Mr. Henry J. Lundy, M.R.I.A.I. The quantities were supplied by Mr. J. Graves Clayton, 18 Nassau Street. Mr. George Langley, Ringsend Road, is the contractor.

Messrs. W. M. Mitchell and Son, have removed their offices from 10 to 2 Stephen's Green, North.

Tenders for works required to be executed in building a new refractory block at the Central Criminal Lunatic Asylum, Dundrum, Co. Dublin, will be received up to 3rd December. The plans and specification can be seen at the office of the Board of Works, Dublin.

Large and extensive alterations are at present being carried out at Ballintyre Hall, Dundrum, for Mr. Arthur V. Fitzherbert. Mr. John F. Richardson is the contractor. Messrs. Phenix and Standing are doing the plumbing and gasfitting. The whole is under the supervision of Mr. J. H. Webb, M.R.I.A.I.

Additions to the factory and a new recreation hall for Messrs. W. R. Jacob and Co. are being carried out by Mr. James Beckett from plans prepared by Mr. George F. Beckett, M.R.I.A.I.

Stores and stables are about to be erected at No.'s 13, 14, 15, and 16 Tyrone Street, for Messrs. Sutton and Co., general carriers. Mr. P. Shortal, 42 York Street, is the contractor for the building work (contract amount £1,068), and Messrs. Smith and Pearson are the contractors for the ironwork and roofing (contract amount £680). Mr. Robert J. Stirling, B.E., F.R.I.A.I., is the architect.

Mr. Thomas Michael, Drumcondra, is building on the Buttery estate a pair of semi-detached houses on the Achill Road, and a pair of similar houses on the Arran Road for Mr. A. Buttery. The plans are by Mr. Robert J. Stirling, B.E., F.R.I.A.I.

Mr. C. J. Crampton, Hammersmith Works, has secured the contract for the completion of the Royal Veterinary College, Pembroke Road. The designs have been prepared by Mr. L. A. McDonnell, M.R.I.A.I., and the cost of the whole work will be approximately £6,000. Portmar-nock bricks will be used in carrying out the work.

Dundalk.—The Rural District Council will, on the 18th inst., consider tenders for building six single labourers' cottages and one double labourer's cottage in blocks, and for fencing plots.

Edenderry.—The Rev. Father Kearney has received from the Board of Works their sanction to the plans and specifications for the erection of the new schools, and, in the course of another couple of months, arrangements will be made for the carrying out of the building and other works connected with the matter.

Arrangements are being made to erect a new Convent in the vicinity of the town for the Sisters of the Community of St. John of God.

Garrison (Co. Fermanagh).—Tenders are being invited for the erection of a new parochial house at Garrison, Co. Fermanagh, for the Rev. Patrick A. McCleary, P.P. Mr. J. V. Brennan, C.E., Belfast, is the architect.

Loughrea.—A new wing is about to be erected to the Convent of Mercy, according to plans and specification prepared by Messrs. W. H. Byrne and Sons. Quantities have been prepared by Mr. A. B. Bruntz, 1 College Street. Tenders close 15th inst.

Limerick.—Consumptive Sanatorium.—The Limerick Board of Guardians at their meeting discussed the question of the erection of a sanatorium for consumptives. Mr. J. P. Lynch proposed a resolution:—“That a small committee of the Board be appointed to go into the cost for the

consumptive wards, into the question of overcrowding in the hospital, the cost of building a home for consumptives, and to inquire into the means of raising money for the erection of same." Mr. Hassett seconded. The Chairman (Mr. P. Burke) said if they could find the money nothing would be more desirable at present than a consumptive sanatorium. The resolution was passed, and the committee appointed arranged to meet.

Monaghan.—The building of the spacious new wing at St. McCartan's Seminary is being pushed forward very rapidly by the contractors, Messrs. J. McAdorey and Son, Dundalk. Mr. J. J. McDonnell, J.P., M.R.I.A., Belfast, is the architect.

The rebuilding of the Diamond Drapery Co.'s premises, in Monaghan, which were destroyed by fire several months ago, has now been completed. The architect is Mr. F. Hayes, Dublin, and the builder, Mr. Patrick Nolan, Monaghan.

Robertstown.—Tenders are invited for building a National School and office at Robertstown, Co. Kildare, for Rev. E. Lawler, P.P., in accordance with plans and specifications prepared by Mr. F. Bergin, B.E., 36 Westmoreland St. For further particulars see our advertising columns.

Tullamore.—The Tullamore branch of one of the banking institutions is about to erect a new building. The present situation of the bank is a most desirable one for the convenience of its clients, and the directors propose erecting a new structure of elaborate and imposing dimensions on the site of the existing building.

REVIEWS OF CATALOGUES.

The "Bell" Range and Foundry Co., Ltd., 70 Mortimer Street, London, W., send us three interesting catalogues dealing with their specialities in ranges and grates. One of the catalogues is devoted to the "Bell" patent range, which is claimed by the makers to be the most practical that has ever been produced, saving fully 50 per cent. of fuel, giving a perfect hot water supply, and requiring less cleaning than any other range made. Without actually committing ourselves to these statements, we must say that a study of the details of the range affords proof that it embodies a great number of excellent features. The ovens are large, well ventilated, and with double flues, and the boiler arrangement is certainly admirable. There is a patent device by which the boiler flue becomes self-cleaning, an advantage that will appeal with irresistible force to any housewife. The oven flues are so constructed that they can be examined at a moment's notice, a point which is also of great importance.

A second catalogue describes "Bells" Patent Basket Fire Grates, which are specially designed so as to ensure perfect and slow combustion. The means adopted for securing this most desirable result are very ingenious, and the fact that they are efficient is clearly seen in use, inasmuch as no cinders are made. That the makers have confidence in their claims is evident, for they sell their grates under conditions which are certainly unique. Every grate is delivered carriage paid, and if, at the end of a winter's use, it has not realised the expectations of the buyer or his architect, the makers agree to take it back at their own expense, to refund the total charge, and to pay the builder's charges for fixing and taking out. No guarantee could possibly be fuller. The "Basket" grates are made in a great number of beautiful designs, the illustrations of which alone make the catalogue worth having.

The most interesting, however, of the catalogues is that dealing with "Bell's" Patent Dog Grates, in which are preserved all the beautiful lines and architectural features of the old-fashioned grates, to which is added modern scientific construction, with the result that these grates are as economical and efficient as the "Basket" grates above referred to. The conditions of sale are, in fact, the same in both cases. The illustrations of the "Dog" grates are very beautiful. We have no hesitation in recommending a perusal of these catalogues to architects and builders, who can, doubtless, obtain them on application to the company at the address above given.

BATH STONE FIRMS.

The report of the Bath Stone Firms, Ltd., for the half-year ended 30th June last, states that, after providing for the remuneration of directors and auditors, the net profit for the half-year is £9,141; add balance brought forward from the 31st December 1906, £12,305, making £21,446. The directors have declared an interim dividend for the six months ended the 30th June last at the rate of 8 per cent. per annum, leaving a balance to carry forward of £12,362. Inasmuch as there has been no improvement in the building trade during the half-year, but rather the reverse, the directors are pleased that they are able to declare an interim dividend at the rate of 8 per cent. per annum.

REVIEWS.

Cassell's Carpentry and Joinery. Edited by Paul N. Hasluck, editor of the "Building World." Cassell and Company, Ltd., London, Paris, New York, and Melbourne, 1907.

Two very excellent publications of Messrs. Cassell's have reached us for review, both edited by Mr. Paul N. Hasluck, and entitled respectively "Carpentry and Joinery" and "Cabinet Work and Joinery." Both will be found very useful and practical works by the craftsman, the contractor, and the architect alike. "Carpentry and Joinery" is certainly what its editor claims—namely, "a practical work on practical handicrafts." Whether it is also by far the most exhaustive on the subject is, however, another matter, but one which it is hardly necessary to discuss. Suffice it to say that the apprentice or tradesman desiring to improve himself in the knowledge of his trade could not possibly do better than invest in a copy of this work, which is published at the reasonable price of 7s. 6d. net.

In the book itself, practice rather than theory largely predominates. The methods of using tools and the processes in daily use in the workshop are fully described. Amongst the contributors to the work may be mentioned Mr. C. W. D. Boxall, Professor Henry Adams, Mr. F. W. Loasby, etc. The illustrations are abundant and useful. The arrangement of the various divisions are practical and convenient of reference; the details of laying-out, jointing, framing, and construction are carefully explained, and relate to matters of practical utility. Such matters as floors, for instance, are dealt with in up-to-date fashion—a feature not, of course, to be found in the older publications; the laying-out of roofs, the framing of sashes and doors, etc., etc., are all fully described.

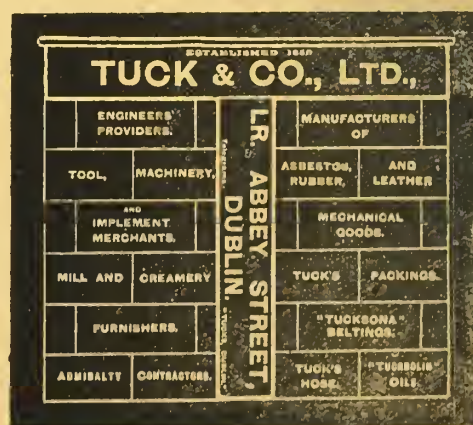
The chief defect of the work is, however, this, that from an artistic point of view the examples given are exceedingly poor, notably such matters as dormer windows, while the examples of church roofs illustrated are deplorable. While this does not affect the utility of the work as a whole, it is a blot which could have easily been removed, by having a number of designs made by a capable designer.

Cabinet Work and Joinery.

This is a companion work to that last referred to, and by the same editor and publishers. It has all the merits of "Carpentry and Joinery," but with its artistic defects intensified. Within its covers are collected an enormous number of the most useful practical examples of all kinds of cabinetmaking and joinery work, with elaborate and carefully-worked-out details of construction, which cannot fail to be of the greatest assistance to the designer or artisan, but all marred by the same fault—deplorably bad design. It is true this work does not make any pretensions to artistic excellence, but there can be no excuse for putting forward such poor examples. Nowadays, with the marked revival of interest in, on the one hand, antique models, and, on the other, sensible and inoffensive types of good modern design, one would naturally expect to find, not merely some reference to, but even a fairly exhaustive treatment of, this now firmly grounded movement. On the contrary, it is entirely ignored, and we are given examples of work that would hardly have passed muster in the most debased days of the early Victorian era. It is a great pity, for otherwise the book is most admirable and practicable.

Loughgall.—The new Orange Hall at Loughgall, which has just been opened by Sir James Strong, Bart., was erected by Messrs. D. G. Martin and Co., Armagh, is of cement finish, with ashlar wall and stone steps.

Mountrath.—Proposed Memorial to the late Canon Fisher, Mountrath.—The memorial committee have decided to erect a pulpit in Mountrath Church, and a memorial tablet in Roskelton Church.



ENGINEERING SECTION.

ITEMS.

Some four years ago Mr. W. Weaver, who was then Engineer to the Kensington Borough Council, and also President of the Municipal and County Engineers, initiated a series of experiments for the manufacture of paving setts from refuse destructor clinker, combined with Trinidad Lake asphalt. We now learn the interesting fact, from the present Borough Engineer, that the experiments have proved highly successful, the setts, or rather blocks, being noiseless as wood, non-porous, unaffected by temperature, sanitarily efficient, and affording excellent foothold for horses. The cost is only 3s. per superficial yard, and the wearing qualities are equal to that of hard wood blocks. If subsequent trial further proves the accuracy of the report, a most useful result will have been attained, for practically all large towns now possess a destructor, and the disposal of the clinker for paving purposes would achieve two economic purposes.

* * * *

After only ten months' wear the rails on the sharp curve of the London County Council Embankment Tramway, Westminster Bridge, require renewal. There are two contributory causes to this wear—first, the excessive grinding away of the metal on the sides of the groove; and, second, the presence of a considerable amount of corrugation. Mr. Fitzmaurice, the Engineer to the Council, is endeavouring to obtain more durable rails, and has recommended a trial of those manufactured by the Sandberg process, the main feature of which is a process of water-cooling during the rolling, combined with an unusually high percentage of silicon. The cost is thereby increased by some twelve per cent., and tramway engineers will watch with interest the result of the experiment. The question of rail corrugation is much to the fore just now, and effective means are being sought for its prevention, in order to reduce the present high cost of track maintenance.

* * * *

As we ventured to prophesy some weeks ago, the danger of a railway strike has been averted by the action of the President of the Board of Trade and the wisdom of the railway directors and the trades union officials, all of whom have approached the subject carefully and judiciously. Both parties to the dispute have conceded something and yet preserved their dignity, and the *modus vivendi* at which they have arrived should better the position of the men, without placing the Boards of Directors under the control of outside union officials. The ballot, although so largely in favour of a strike, revealed some grave weaknesses in Mr. Bell's position, especially with regard to the number of those prepared to strike as compared with the total number of employees in the service, and it may safely be assumed that the chief organiser is relieved at the recent favourable turn of events. For months past the engineering and commercial worlds have been disturbed by the impending danger, and now that a settlement has been arrived at which will continue for a number of years, there will assuredly follow a recrudescence of business, and more cordial relations between employers and employed. For these desirable results Mr. Lloyd George has received a nation's thanks, which are but his due.

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In connection with railway matters, the writer, in the small hours of the morning, recently stepped out of a train at a small junction in West Cork. The train on the branch line was at the platform, and gradually the hour of its departure arrived, and passed. Minute after minute slipped by, and at length, patience being exhausted, the guard was asked the reason of the delay. "Faith, sir," said he "the d—d steam raiser has slept it out!!!"

* * * *

The Tuberculosis Exhibition, recently held at the Herbert Park, Dublin, has achieved the results which its promoters hoped for, and the exhibits and the papers read each evening by eminent hygienic authorities have called public attention to the ravages of the disease, and the necessity for speedy and drastic steps being taken for its prevention. A sidelight on one of the chief causes of the increase of the disease was thrown by Mr. Redmond when speaking at Sligo. Turning from politics, he referred to the "serious problems that fall within the sphere of municipal duties,"

the chief of which he considered to be the proper housing of the poor. In Ireland at the present time there are 79,149 tenements of one room occupied by a family, and nearly a quarter of a million two-roomed tenements. In Dublin alone it is said that 36.7 of all the families in the city live in one room. In the face of such unhealthy and depressing conditions, it is not surprising that phthisis finds fertile soil. However, the movement to combat the inroads of the disease is growing apace in volume and influence, and it is the earnest duty of every engineer and architect to place his knowledge and training at the disposal of the various committees which will shortly be formed. The effort has received hearty support from their excellencies, to whom the country owes a deep debt of gratitude, and the best method of showing this is for each and all to contribute their share of work to once and for ever eliminate the plague from our midst.

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Mr. Cheverton-Brown, Hon. Secretary of the Holderness Coast Erosion Committee, gave very interesting evidence and advice before the Royal Commission on Coast Erosion. He has, in the course of his secretarial duties, accumulated a vast amount of knowledge and experience on the subject, and suggests that ferro-concrete groynes should be erected in connection with a sea wall, all of which structures should assume an angle of repose. Mr. Brown estimated the cost of the groynes at £3,000 per mile, and of the wall at £2,000 per mile, an amount which compares favourably with the cost of timber defence works, especially when it is remembered how subject the latter are to attack from marine worms. The importance of this question can best be judged when it is remembered that, for many miles of the east coast of England alone, the erosion proceeds at the rate of 2½ yards per annum. There is no important reason why this serious loss of land should continue, at least as regards the engineering aspect of the question—the difficulty apparently lies in the fact that the duty of preservation devolves on nobody in particular. Private individuals cannot be expected to meet the heavy cost of coast defence, and inland Rural Councils, not at present affected by the incursion of the sea, cannot be convinced of their responsibility, whilst those bodies that are affected are inclined to leave the matter in the hands of Fate. Mr. Brown's proposal is that, as the rural authorities get large sums in rates and taxes, they should undertake the work of protection; then, as the Government would derive revenue from the accreted land, they also should contribute to the expenses. He further suggested that there should be one central department controlling all matters relating to foreshore protection, and that some scheme should be propounded by which every section of the coast line of the Kingdom would be properly dealt with, and the cost proportioned to the interests involved and the ensuing benefits. The cost should be levied, part on the owners, part on the tenants, part on the county authorities, and part on the Government. These suggestions are extremely sensible, and will doubtless receive close attention from the Commissioners. When it is recollected how large are the sums of money expended at seaside towns on piers, promenades, etc., it would not appear difficult to combine these public attractions with works of public usefulness; and, as our contemporary, the *Sanitary Record*, suggests, a defence wall along considerable stretches of the coast could be converted to a motor track, which would doubtless be well patronised and become a profitable undertaking.

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One is so accustomed to reading announcements of curious appointments by the various councils in Ireland, especially in regard to their technical officials, that there is a temptation to believe such anomalies are peculiar to this country. Yet the writer recollects an advertisement hoarding, in a London suburb, on which the qualifications of a certain gentleman were displayed as auctioneer, valuer, architect, engineer, and undertaker. And now we read that the Kirkham Urban District Council are advertising for a "surveyor, building inspector, inspector of nuisances, and collector of district rate," the officer being expected to devote the *whole of his time* to his duties. For this combination of engineering, building, sanitary, and financial knowledge, the fortunate individual who obtains the post will receive the munificent salary of £80 per annum. Applicants are to state their age, *occupation*, and previous experience, which apparently allows the Council wide discretionary powers of selection. That portion of the salary to be

allotted to the post of inspector of nuisances is not indicated, and as with Local Government Board approval the county will be asked to contribute one-half the salary to that post, a suitable division, from the Council's point of view, would be: Surveyor, £1; building inspector, £2; collector of district rate, £5; and the balance to the inspector of nuisances. Having regard to the terms of the appointment, it is, perhaps, wise, on the part of the municipal rulers of Kirkham, that no bond is required for the rate collector; the premium would probably be a high one. It is surprising to find men, who have an urban district under their control, being so unbusinesslike as to issue an advertisement of this type, and it is a pity that means cannot be devised whereby such crude absurdities might be prevented. All over the Kingdom huge sums of money are annually expended on municipal affairs, loans of alarming amounts are sanctioned and floated, and the rates are surely, and not very slowly, increasing. And when the time arises to create appointments of officials to control this expenditure, the qualifications of the candidates need be but of the most meagre description; several important posts are combined, and one man appointed to fill them. There is but a single requirement upon which the Councils agree, that the salary shall be as small as possible—in the case under review not that earned by a carpenter at the bench. Penny wise, pound foolish, seems to be the axiom of Bumbledom; meanwhile properly qualified engineers and architects are in despair at the decrease of their practice and the few properly paid posts open to them.

ENGINEERS AT £4 A YEAR!

The opening of tenders for the office of Clerk of Works for the Kilfush Union disclosed the fact that two engineers tendered—Thos. Sheedy, of Parknamona, at £4 a year, and Thos. Scanlan, of Mullagh, at £5 a year. Michael Morrissey, a carpenter, tendered for the job at £9; Thomas Barry, a carpenter also, tendered at £2 15s.; and Patrick Mungovan, a road official, at £2 2s. 6d. After a protracted discussion, Mungovan's tender was accepted by 15 votes to 7.

Though in this case the Guardians appear to have very properly only called for a Clerk of Works, the "engineer" (probably with a L.G.B. title) was still in evidence.

OUR ILLUSTRATIONS.

The High Altar, Claremorris Church.

The work of constructing the high altar, which was designed by Messrs. Doolin, Butler, and Donnelly, architects, was entrusted to the well-known sculptor, Mr. Patrick Tomlin, of Grantham Street, Dublin, who is admittedly one of the best exponents of ecclesiastical sculptural art in Ireland. The altar is some thirty-six feet high, and almost the entire width of the chancel. The altar frontal or *antependium* and the candle benches are of Sicilian marble, while the three sculptured panels (the personal work of Mr. Tomlin himself) are in the purest white Carrara statuary marble, and represent "The Three Sacrifices." The high and imposing reredos consists of a series of elaborately traceried, canopied, cusped, and crocketed niches, containing statues of thirty-two saints traditionally associated with the Diocese of Tuam. Either side of the reredos is flanked by larger niches, under richly-wrought canopies and spires, and containing statues of St. Michael the Archangel and St. Patrick, respectively. The predella and altar steps are of Irish marble, the beautiful Merlin Park black (Galway) marble, probably the finest black marble in the world. These were prepared by the Galway Granite and Marble Company—a new industry which promises to afford a considerable and much-needed source of employment to "The City of the Tribes." The establishment of this company, with its splendid and up-to-date new works, and its present success being mainly due to the energy of Colonel Arthur H. Courtenay, C.B., D.L. The finely-worked and rich tabernacle door is the work of Mr. John Kane, of Middle Abbey Street, Dublin.

Helliwell and Co., Ltd., of Brighouse, Yorkshire, and 11 Victoria Street, Westminster, London, have received contracts for the patent roof glazing on their Helliwell "Perfection" system, for the London and North Western Railway carriage sheds at Crewe; Furness Railway, Passenger Station at Millom; London County Council sub-stations at Islington, Hackney, Holloway, Upper Clapton Road, and Stockwell Road; Cardiff Infirmary; Bolsover Colliery. They have also further contracts for the Belfast Harbour Sheds, Coventry Electric Light Station, Messrs. Vickers, Sons, and Maxim, Ltd., Barrow-in-Furness; Messrs. W. H. Allen, Son and Co., Ltd., Bedford, etc., etc., and a large export order for Brazil.

INSTITUTION OF CIVIL ENGINEERS.

A meeting of the Council of the Institution of Civil Engineers of Ireland was held at 35 Dawson Street.

In the evening a general meeting was held, the President (Mr. J. H. Moore) occupying the chair.

The following were elected new members:—Mr. Laurence Joseph Kettle, Clonmore, Glasnevin, and Mr. William Alexander Cheeke, 2 Lower Merrion Street. Mr. James Heppell Marr, Smithstown House, Castlecomer, Co. Kilkenny, was elected an associate member.

The President delivered the inaugural address, which was entitled "Progress of Civil Engineering in Ireland and the Prospects of Employment for Civil Engineering at Present." Having spoken of the progress of the institution, the accession of new members, and associate members, etc., he gave a history of the old roads and bridges and of their construction, and he expressed the opinion that there were prospects of increased work for engineers in carrying out works that were very necessary, such as the extension of some of the railways. He also mentioned the increased work in connection with the building of labourers' cottages, and the extension of harbours and docks. He alluded to the work which had been done in the port of Dublin, for which large sums of money had been granted by the Irish Parliament, and said that but for those grants of money the Port and Docks Board would not be in the position it was now, as the income which was derived from port dues would not be sufficient to carry on the work. He urged the extension of the area for which charges were made for maintenance of public works. The President then dealt with the construction of roads in Ireland from the time of the five roads to Tara down to the present; and, having pointed out the difficulties that attend the making of roads at present, said that unless the main roads were taken over by the Government, as in France, and the cost levied over the whole country, and defrayed out of the Imperial Exchequer, there was no material prospect of extension or improvement. The increasing use of motor vehicles had brought the question to the front. He next dealt with the railways, and pointed out that, while it was obviously meant that the railway lines, like roads, should be public property, they had, as a matter of fact, become private property; and, even where public money was expended in the construction of the line, the management was in the hands of private companies. The country was divided into districts, which were regarded as the territories of particular lines, and extensions which would prove useful were not made, because they would involve the invasion of another company's district. Thus the Great Northern line to Oldcastle could not be extended because it would go into Midland territory, and the Midland line to King's County could not be extended because it would go into Great Northern territory. The results of the present system were unsatisfactory alike to the public and to the shareholders. As far as the original shareholders of some of the smaller lines were concerned, their money might as well have been thrown into the sea, and it was not likely that any more private money would be forthcoming for the construction of railways. For that reason baronial guarantees were relied upon, but considering the experience of the contributing bodies there were not many Councils that would contribute further money towards railways. They had the case of the County Council of Leitrim, who were willing to spend a certain amount on a railway to connect with the Arigna coal mines, but were intimidated from doing so by a mob who stormed the Council chamber. There was a proposal that this connection be made to Sligo, and he hoped it would be attended with better results. The President went on to deal with canals, docks, drainage, labourers' cottages, bridges, and other works which he said would open up employment for engineers. He was disposed to take a hopeful view of the situation. Steady progress had been made during the past fifty years, and they might assume that that rate of progress would continue.

Mr. Wm. Ross, in moving a vote of thanks to the President, said that the President's promises of additional work for engineers would not be borne out unless the works alluded to were able to pay a rate of interest. It would be useless to expect the State to help, because the State expenditure was increasing every year, and there was more to be done than money could be found for.

Mr. Griffith, in seconding the motion, agreed with the President that the port of Dublin could not be as efficient as it now was had it not been for the large sums which had been granted by the Irish Parliament. In initiating certain public works State aid should be invoked.

The resolution was carried amid applause, the President acknowledging it, and the proceedings concluded.

OUR SOUTHERN LETTER.

(FROM OUR CORRESPONDENT).

Railways.

A Board meeting of the Cork City Railways has been held at Paddington Terminus, London, at which a report from the engineer was submitted, and plans showing the lands which will be required for the construction of the line. Instructions were given to proceed with the negotiations for the acquisition of the necessary lands, and Mr. Maurice Healy, solicitor, and Mr. J. F. McMullen, surveyor, both of Cork, were appointed to act for the Railway Company for that purpose.

The Cork Harbour Commissioners have decided to apply to Parliament for powers to construct sidings on the quays, which will be worked in connection with the above railway.

There is a scheme, which will be brought forward at an early date, for the extension of the Cork, Blackrock, and Passage Railway from Rafeen to Haulbowline Dockyard.

The proposed extension would be three miles in length, and the course taken would be along the foreshore of Ballybricken from Rafeen to Ringaskiddy, from there to Paddy's Point, and across the Back Channel to Haulbowline. This extension would greatly facilitate the workmen employed at the dockyard, as at present they have to get to their work by either the steamer from Queenstown or Monkstown, or by rowing boats.

Haulbowline Dockyard.

The Admiralty have accepted the tender of Messrs. Matcham and Co., Ltd., of Plymouth, for the dock extension and other work connected therewith at the above dockyard. The amount of the tender is stated to be £68,000. The contractors are now making preparations for transporting the plant and materials to the site. The work will be carried out under the personal supervision of Mr. A. R. Debnam, managing director of the company.

The most important feature of the contract is the extension of the dock from its present length of 412 feet to 600 feet, so as to take vessels of the largest dimensions at present constructed, and this development has necessitated a corresponding increase in the general resources of the dockyard. The contract also makes provision for improving the railway service on the island connected with the establishment, variations of roadways, and the construction of a line of rails around the dock for travelling cranes.

The contract is expected to be completed in three years, and it is expected that the Admiralty will spend at least £110,000 in the above work, and making other improvements at this, the only Irish naval dockyard. The reason for bringing this dockyard up-to-date now is owing to its proximity to the naval base of the Atlantic Fleet at Berehaven. The above contractors have already carried out with satisfaction important contracts for the Government.

General.

The Cork County Council propose that the following works should be carried out:—That a pier and approach road be constructed in the townland of Goleen, at an estimated cost of £750; also that a pier be constructed at Tracloosh, Bantry, at an estimated cost of £250.

The County of Cork Joint Hospital Board have accepted the tender of Messrs. Kennan and Sons, Dublin, at the sum of £354, for supplying and erecting a wire fence around the grounds of the sanatorium proposed to be erected at Streamhill, near Doneraile.

The Urban Council of Dungarvan, and the County Council of Waterford, are applying to the Chief Secretary of Ireland for the balance of the sum of money in the hands of the Treasury for railway purposes, and which amounts to £35,000, which sum they wish to expend in the following manner:—£10,000 to be applied to the improvement of the Rivers Bride, Blackwater, and Suir, and £25,000 for the making of a roadway to Ballinagoul and Helvick; also for the reclamation of over a thousand acres of the Western Bay, Dungarvan.

The Representative Church Body require an architect for the dioceses of Cashel, Emly, Waterford, and Lismore; Cork, Cloyne, and Ross; Limerick, Ardfert, and Aghadoc. The salary offered is £300 per annum, and whoever may be appointed must reside either in Cork or Limerick.



On Thursday night Mr. Anthony Scott, of Dublin, the architect of the recently erected memorial of the Irish Brigade at Fontenoy, accompanied by his daughter, Mrs. Byrne, of Dublin, arrived at Rome, and took up their residence at the Hotel Hayden, where a son and a daughter of his reside. Mr. Scott is deeply interested in the magnificent monuments of Roman architecture, and particularly so in the archæology of the ancient city, and the remnants of its architectural greatness which have come down to our days, and which have been so luminously illustrated of recent years by Commendatore Giacomo Boni.—*Freeman's Journal*.

THE FORESTRY COMMISSION.

One does not need to be a close student of politics to become somewhat sceptical as to the practical value of Commissions of Inquiry. It would seem, in fact, that troublesome subjects are most easily shelved by the simple process of making them the subject of an official inquiry. These commissions are, at the best, tedious affairs. By the time they take their evidence and make their reports their subject has been to a great extent forgotten, or political urgency has moved on to something else. It is to be hoped, however, that the labours of the Departmental Committee at present inquiring into the condition of Forestry in Ireland will have better results. The evidence adduced up to the present has certainly not been lacking in authority or importance, and it has established conclusively every argument adduced by ourselves and others who have strongly advocated a comprehensive scheme of afforestation in Ireland.

In the first place, the testimony as to the present condition of Irish woodlands has revealed a deplorable state of affairs. As one expert witness put it, "the woods of Ireland are only woods in name." Most of the trees in them are, commercially speaking, rubbish, but, bad as they are, they are being ruthlessly and unprofitably cut down, while no attempt is being made to replace them. No wonder, therefore, that manufacturers and merchants engaged in the native timber business, and in the industries dependent on it, testified unanimously that if the present policy is to continue their trade would disappear for sheer want of material. This shows one aspect of the case, and another was brought into great prominence by expert evidence of unquestionable standing. Mr. Thomas Webber, late Forest Surveyor in the North-West Province of India, where afforestation has been a tremendous success, declared that Ireland was a country most suitable for the profitable growing of trees. He said, for example, that white deal could be produced as good as that of Norway, Switzerland, or the Hartz Mountains. Ash, beech, and sycamore, in his opinion, grow very well in this country, and as to larch, anyone who is at all acquainted with timber growing is aware that the Irish variety of this very valuable wood is unsurpassed, and that our larches are free from the pests which prove ruinous to them in other countries. These are some only of the timbers that have been mentioned by witnesses whose opinion is worth having. But there has been a consensus of expert opinion that afforestation on a large scale is an urgent need, and that it would undoubtedly prove highly profitable. To be successful, however, it must be done scientifically, as it has been done in India, and, above all, it must not be delayed. As to the industries which the existence of extensive and properly-stocked woodlands would call up and foster, they are, to use a hackneyed phrase, too numerous to mention. One alone which was alluded to in the recent sittings of the committee, namely, the manufacture of wood-pulp, would in itself be almost sufficient to justify the planting of the waste lands of Ireland.

There really seems to be ground for hope that when this committee presents its report the Government will do something. It is often said, and with truth, that the Irish are too prone to look for Government aid. But this is a case in which we may legitimately call upon the State for extensive planting, inasmuch as it will not benefit the present generation, and cannot reasonably be left to private enterprise. In national schemes of any magnitude there is an undoubted tendency on the part of the "predominant partner" to extend the Cinderella treatment to Ireland, as was illustrated in this very question by the evidence of Mr. Stafford Howard, C.B., one of the Commissioners of His Majesty's Woods and Forests. According to this gentleman, forestry experiments have been made in various parts of the United Kingdom, and a large tract of land has been purchased in Scotland for planting purposes. In Ireland, alone, nothing has been done; and why? Because, forsooth, the Irish members, although they asked many questions in Parliament about the matter, did not personally approach Mr. Howard. The state of affairs revealed by an admission so charmingly ingenuous as that is, to say the least, instructive. Let us hope that in the near future the question of the replanting of Ireland will have behind it something more solid and substantial than the mere initiative of an official, be he ever so highly placed.



Mr. J. A. Henderson, B.A., C.E., Lisbellaw, has left for Nigeria. Mr. Henderson has been appointed by the Government to the post of junior assistant engineer of the Lagos Railway extension.

ENGINEERING NEWS.

Ballybay.—During the past couple of weeks pipes have been laid, and the sewerage scheme—of which Mr. P. Ritchie, Belfast, is the contractor—is being pushed forward rapidly in different parts of the town.

Belturbet.—Belturbet Urban Council have under consideration the question of obtaining a loan of £200 for the purpose of improving the water supply of the town by sinking artesian wells.

Dublin.—The Corporation have taken over the New Road constructed by Messrs. Collen Bros., East Wall, according to specification of Mr. F. W. Higginbotham, M.Inst.C.E.

Mr. Howard MacGarvey has been carrying out extensions to Varttry mains at Chapelizod for Dr. Dockrory. The plans and specification were prepared by Mr. F. W. Higginbotham, M.Inst.C.E.

Kilkeel.—The Rural District Council have applied to the Local Government Board for Ireland for their sanction to a loan of £4,000 for the purpose of providing a water supply for Kilkeel.

Kildare.—The plans for the Naas sewerage scheme, which have been prepared by Mr. F. Bergin, B.E., have received the sanction of the Local Government Board, and tenders will be invited for the work during the current month. Mr. F. Bergin is preparing plans for a water supply to and sewerage scheme for Sallins, and a sewerage scheme for Kilcullen.

Monaghan.—At a special meeting of Monaghan County Council, Mr. Thos. Toal, J.P., Chairman, presiding, Mr. J. T. Rooney, Magheranney, Smithboro', Co. Monaghan, was temporarily appointed Assistant Co. Surveyor for Monaghan in the room of Mr. Quigley, Annalore, Clones, who was recently appointed Co. Surveyor for Meath.

Newcastle (Co. Down).—At the monthly meeting of the Newcastle Council, Mr. M'Anulty proposed and Mr. McCauley seconded the report of the Public Health and General Purposes Committee, which contained a recommendation that steps be taken by the Council to provide a scheme embracing sewerage, lighting by electricity, and water supply, and that Lord Annesley be asked if he would sell his water supply and plant with an extended catchment area. The Chairman outlined the proposed scheme, the cost of which he estimated at £21,450, viz., sewerage, £13,000; electricity, £4,000; purchase of Lord Annesley's interests in water supply and plant, with additional catchment, £4,000. After discussion, the recommendation was unanimously agreed to. It was decided to communicate with the Department of Agriculture and Technical Instruction requesting a grant of £500 for the construction of landing slips and berthage accommodation in the harbour. The tenders of Mr. James McCauley at £17 to make a sewer near Shane Lodge and of the Slieve Donard Granite Quarries to erect four boundary stones at £1 2s. each were accepted.

Tuam.—A special meeting of the Tuam Sanitary Committee was held for the purpose of considering Dr. T. B. Costello's report of the Tuam sewerage referred to them by the Rural District Council for their observations thereon. The secretary, Mr. Shine, having read Dr. Costello's report a long discussion ensued, resulting in a resolution recommending that the District Council advertise a prize of £50 to the engineer who furnishes the best and most feasible sewerage plan for the town, as had been done in the case of the waterworks.

The Waterworks Improvements.—The Local Government Board have requested the R. D. Council to furnish them with certified copies of plans and specification of the works in respect of which a loan of £800 was sanctioned to the Tuam Rural District Council for the purpose of improving the water supply of the town of Tuam.

Waterford.—The Chief Secretary, in his office in the Castle, received a deputation representing various public bodies in Waterford, who ask that he use his influence with the Treasury to obtain a sum of £35,000 towards an improvement scheme proposed for Dungarvan Bay, and the navigation of the rivers Blackwater, Suir, and Bride.

CONTRACTS.

TO BUILDERS.

Tenders are required from competent Builders on or before the 25th inst. for erecting a National School and Office at Robertstown, County Kildare, for the Very Rev. E. Lawler, P.P., in accordance with plans and specification, which may be seen at the Parochial House, Allen, Kilmeague, or at my Office.

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LAW.

The Dublin Main Drainage.—Messrs. Pearson's Action Settled.

A settlement has been made in the action brought by Messrs. Pearson and Co., contractors, London, against the Corporation of Dublin to recover damages for alleged misrepresentation in certain parts of the specification and plans upon which the plaintiffs undertook the contract for the construction of certain works at the Pigeon House in connection with the main drainage scheme.

The settlement provided for the payment by the Corporation of £5,000 within a month in lieu of damages claimed in the action, and of the costs within one month from the date of the production of the certificate of taxation.

The costs of the proceedings in connection with the claim are stated to amount to £14,000.

The action, in which the plaintiffs sought to recover £36,000 damages, had been previously tried, and a verdict was obtained by the Corporation, but, on appeal, the House of Lords set aside the verdict and directed a new trial, which was fixed to take place last week, when the County of Dublin jurors were specially summoned.

The plaintiffs' allegation was that the plans prepared by the Corporation engineers represented that the north harbour wall went down to a certain depth, that they tendered on this assumption, and that in consequence of the misrepresentation in the plans they were put to enormous expense, which they had not taken into account at the time of sending in their tender.

Action Against County Council and County Surveyor.

A road contractor named Thomas Rennick sued the Cavan County Council, at the Cavan Quarter Sessions, and Mr. Somerville, Co. Surveyor, for £25, amount alleged to be due for extra work done in connection with a contract at Lisboduff.

Mr. L. C. P. Smith appeared for plaintiff, Mr. F. McBreen for the County Council, and Mr. H. P. Kennedy for the County Surveyor.

Plaintiff stated that he had a contract for repairing a road and lowering a hill at Lisboduff. When the work was done Mr. Somerville told him to do other work, and gave him a reimbursement for £25, and he brought it before the District Council at Cootehill, and they passed it unanimously.

Mr. Smith—The Council held that Mr. Somerville had no right to do as he had done.

Cross-examined—The price of the contract was £75.

Mr. B. Hughes, chairman of the District Council, said that £25 was passed by the Council.

Mr. Somerville, examined by Mr. Kennedy, stated that the contract was with the County Council, although it was the District Council that took the tenders. He made no contract with plaintiff to do work outside the specification. The work he claimed for was part of the original contract, and was provided for in the specification.

Cross-examined—The specification was slightly altered, but it was in favour of the contractor. There was no sudden breach order given for this particular work.

The case was dismissed on the merits.

Solicitor and Co. Surveyor.

Fras. Tully, a road contractor, sued the Cavan County Council for a quarter's payment in respect of the repairing of certain roads in the Castlerahan district.

Mr. L. C. P. Smith, who appeared for plaintiff, said that owing to heavy snow storms the plaintiff had not his contract roads in such condition in the month of February that the Co. Surveyor could feel justified in certifying for payment. The plaintiff was summoned before the magistrates, and fined in costs 15s., and directed to do the work to the satisfaction of the engineer within fourteen days. On the 11th April, three days before the fourteen days had expired, Mr. Somerville went to the Castlerahan District Council and got the payments struck out, although the work was done. The amounts were £3 7s. 6d., £2 8s. 8d., and £3 16s. 6d.

Mr. McBreen, solicitor to the Co. Council—The payments struck out were prior to March. Before the Co. Council can pay any contractor they must get the certificate of the Co. Surveyor.

Mr. Somerville stated that on the 15th February he found the road totally neglected, and struck out the payments. They were struck out prior to the 30th March.

Mr. Smith—The work was done before the time allowed by the magistrates had expired. Why didn't you tell him?

Mr. Somerville—I had nothing to do with the magistrates' order.

Mr. Smith—So you walked over the magistrates' order.
Mr. Somerville—I have nothing to do with the magistrates' order.
Mr. Smith—Be candid now.
Mr. Somerville—I am always candid, Mr. Smith.
Mr. Smith—You can't walk over us now like long ago.
Mr. Somerville—I will appeal to the Court for protection. I will try and make the case intelligent to Mr. Smith (laughter).
Mr. Smith.—It would take a pick-axe to get at your intelligence (laughter).
The case was dismissed on the merits.

Compensation by an Urban Council.

At the last meeting of the Dalkey U.D.C. the Clerk read a report from the Special Sanitary Committee appointed to report in reference to the flooding from the township sewers of Abbey View, the residence of Mr. Thos. Monks, LL.D., solicitor. The report recited that a deputation, accompanied by Mr. J. J. McDonald, solicitor to the Council, had waited upon Dr. Monks, and had arrived at a settlement of the dispute, subject to the sanction of the Council.

Mr. Fullerton explained the terms of the settlement, which provided that the sewer which flooded Dr. Monks' residence should be removed and relaid at a cost of £100; connect gate lodge with sewer at a cost of £7, and relay floor of room injured at a cost of £10. Owing to illness in his family, Dr. Monks had been put to about £70 expenses, which was compromised by payment of a sum of £20. The Committee were indebted to Mr. Judd for the very satisfactory arrangement made with Dr. Monks in what appeared to be a very serious matter.

Mr. McDonald, solicitor to the Council, wrote stating that as there was practically no defence to the action, he highly approved of the proposed settlement, which should be concluded without a moment's delay.

The Chairman highly approved of the settlement, which he advised fully a month previously, when an expenditure of £20 could have been avoided.

After some further discussion the report was adopted.

Maryborough.—Mountmellick Rural District Council have received tenders for seating a sewer trap under the outlet of each fountain in town of Maryborough, with concrete basin formed around same, and connected to nearest sewer or drain.

THE CRAFTON STREET EXPLOSION.

During a recent conference held in Chicago between members of the Chicago Fire Underwriters' Association and M. W. Pitner, the recognised authority in the United States, of Petrol Gas Lighting, himself the inventor of the famous PITNER LIGHTING SYSTEM, Mr. Pitner clearly demonstrated the impossibility of the same disastrous effects attending any misfortune to a Pitner Lighting System as would occur in the leakage and attendant explosion and fire of manufactured coal gas.

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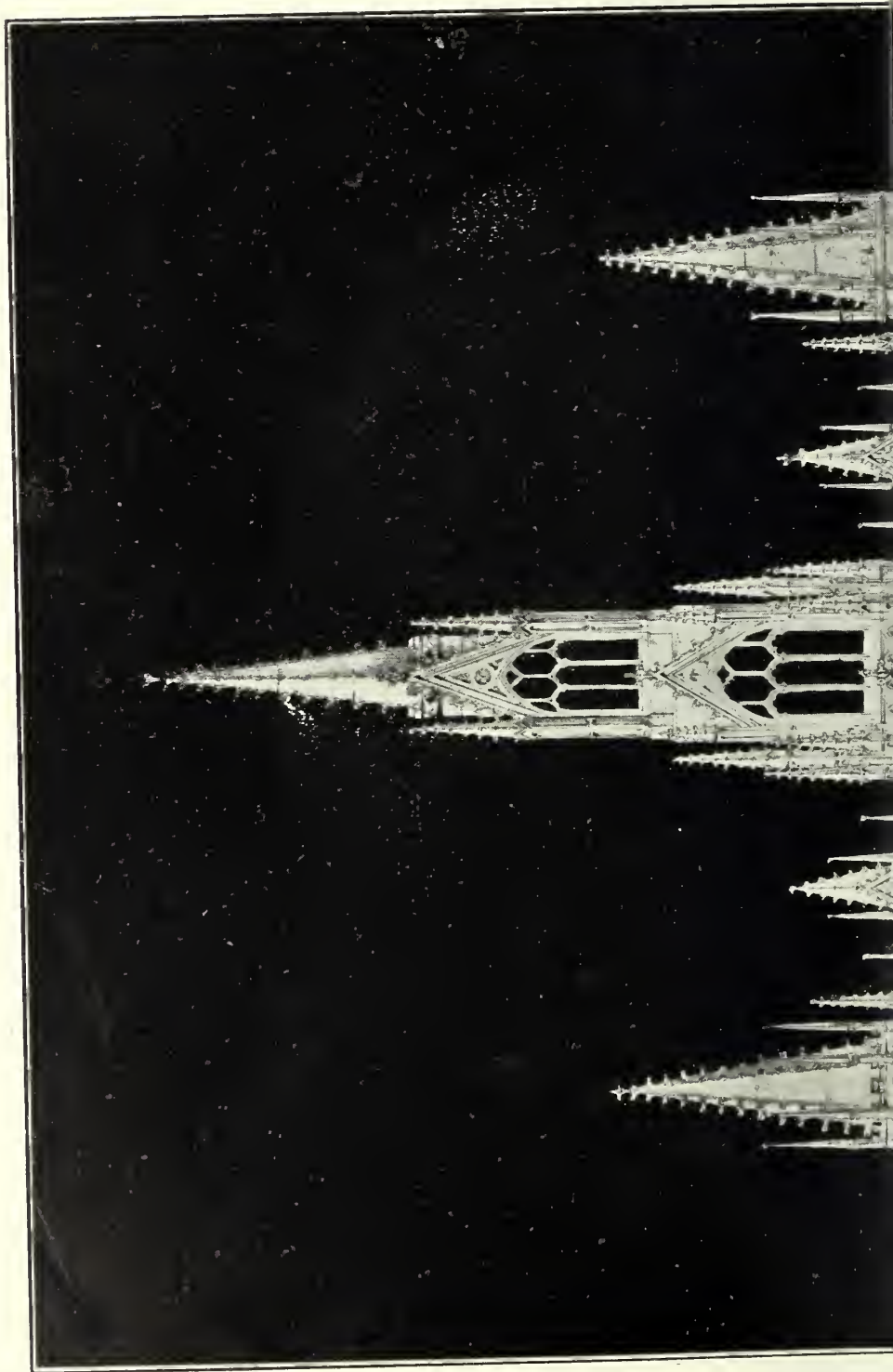


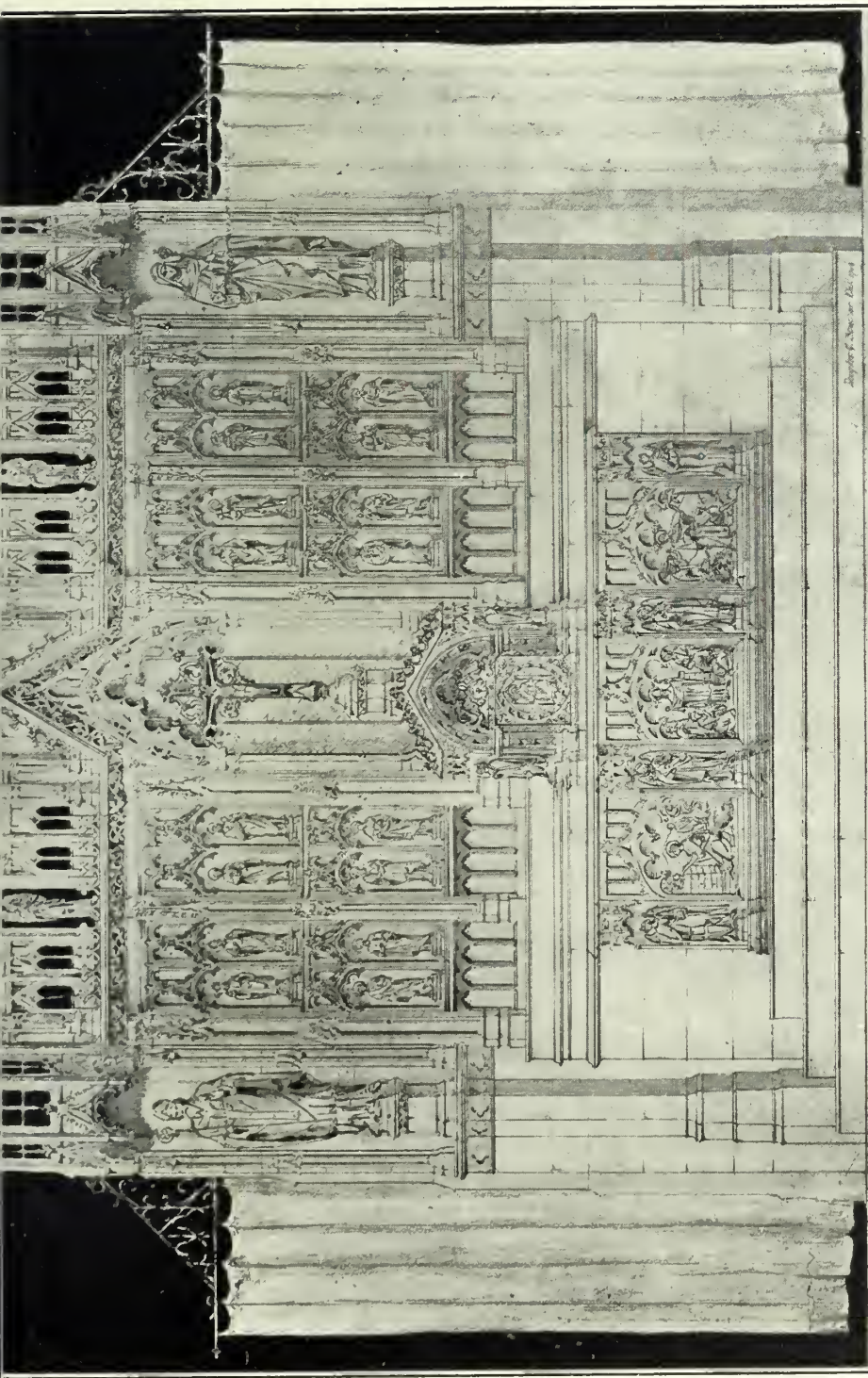
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HEAD OFFICE

November 30, 1907.

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TOPICAL TOUCHES.

This week, for the first time on record, the Architectural Association of Ireland had a lady lecturer. On Tuesday last, Mrs. Tarpey delivered a lecture before a fairly large audience, a large proportion of whom were lady friends of the members.

* * * *

The next meeting of the Institution of Civil Engineers of Ireland will be held on 4th December, when Mr. Lilly, the hon. sec. of the Institution, will read a paper on the Quebec Bridge disaster.

* * * *

The tender of Messrs. Harvey and McLoughlin has been accepted for the new College of Science in Dublin. The contract price, we understand, is £110,000, and this includes £40,000 worth of Portland stone (imported raw material and labour on same). We protest in the strongest possible manner against this perfectly wanton act on the part of the Government at a time when quarries of very beautiful white granite in the County Dublin are almost idle, not to speak of granite quarries at Ballynocken, Newry, Castlewellsan, and Galway, as well as fine limestones. The excuse for the importation of so much stone is that the execution of the necessary mouldings, etc., in granite is rendered prohibitive by reason of the excessive cost. This is so much rubbish. We say that the work could be done practically as cheaply, and far more durably in local granite. The Government has never gone to the trouble of ascertaining what it would cost in granite or limestone. How do they know, if they won't ask? One granite quarry owner tells us his granite was condemned on the grounds of "excessive cost," without his even being asked what it would cost. We are aware from our own knowledge that this man has facilities for handling large orders, and has actually turned out his work quickly and well in the past; that in a large job, with fairly elaborate details, in the South of Ireland, with a long and expensive sea-carriage, he was only £500 or £600 over the price of a comparatively soft Somersetshire stone. If the Government thought Irish stone too dear, why did they not test it by alternative estimates for English and Irish stones, with a reasonable preference to the latter, and so silence all criticism. Will it be believed that some Irish quarries are actually being subsidised by one Government department at the cost of the ratepayers, while another department refuses to allow the quarry to tender for its work? The Department of Agriculture employs an expert at a very large salary, who is engaged going round the country, looking after Irish quarries, advising the owners, and encouraging them to train workers; while the other Government department does its best to crush the industry by boycotting it. Would the law officers of the Crown define this as intimidation or illegal conspiracy? The thing is too absurd. Was it the unsuitability of Irish stone for elaborate details prevented its being used in the case of the Fastnet Lighthouse, Co. Cork, which cost £84,000—all CORNISH granite? What was the matter with Galway or Newry? The fact of the matter is, Irish owners got themselves a very bad name in the past, and are now suffering for it—a case of giving a dog a bad name.

* * * *

We commend to our readers a letter addressed to the Editor of the *London Builders' Journal*, and which we reproduce in this issue.

A new block of buildings is to be erected at the Central Criminal Lunatic Asylum, Dundrum, Co. Dublin.

* * * *

The premises of the Sun Fire and Life Office (formerly the old Patriotic Assurance Co.), adjoining Jury's Hotel in College Green, are about being rebuilt from the designs of a London architect, whose name has not yet reached us. Messrs. J. F. Keatinge and Sons, of Grafton Street, Dublin, are the contractors.

* * * *

We understand that no determination has ever been come to on the subject of the dispute between the Master Builders' Association and the Irish Institute of Architects, which has prevailed now for quite a long time. We understand great interest was taken in the matter by builders' associations throughout England and Scotland, but the matter has been allowed to remain in abeyance, or shelved indefinitely, the old conditions being generally used. It is rather unfortunate that some further effort is not made to arrive at an agreement in respect of some short, common-sense conditions of contract, equitable and just to employer, contractor, and architect alike.

* * * *

We wonder how it would meet the views of builders and architects, respectively, to eliminate all reference to arbitration, making the architect sole judge, but, as a *quid pro quo*, making the bills of quantities the basis of the contract.

* * * *

The project of establishing a society to encourage the delineation or photography of 18th century Dublin is making satisfactory progress. The members of the conference held between representatives of the Architectural Association and Dr. MacDowell Cosgrave has been resolved into a provisional committee to deal with the matter, Dr. Cosgrave and Mr. P. L. Dickenson consenting to act as honorary secretaries *pro tem*. A considerable measure of support has already been secured, and it is intended to call a public meeting early in December to consider the matter. The use of the hall of the Royal Irish Academy has kindly been promised for this purpose.

* * * *

To-day there opens in the Modern Gallery, 61 New Bond Street, London, W., an exhibition of pen and ink sketches in Holland, Brittany, etc., the work of that veteran draftsman, Mr. T. Raffles Davison, Hon. A.R.I.B.A.—one of the pioneers, and still the leader, of the highest type of British Architectural pen-and-ink draftsmanship. Every draftsman knows and appreciates Raffles Davison's work for its artistic excellence and charm of delicate expression, no less than for the marvellous extent of the output. Week by week, for year upon year, in the pages of our contemporary, "The British Architect," we find the industrious results of Mr. Davison's work. No other architectural artist of our time has such an output to his credit. The sketches that have appeared in "The British Architect" alone are no mean life's work, and, as a record of contemporary architecture, stand alone—as the work of one man. The exhibition in the Modern Gallery will remain open until 12th December, and if any of our readers happen to find themselves in London while it is open, they should not miss the opportunity of seeing the original drawings.

* * * *

In our next issue we hope to publish some of Mr. Raffles Davison's work.

THE EDUCATION OF THE IDEAL ARCHITECT.

In connection with the Architectural Association of Ireland there exists a class, or club, known as "the Design Club." Its members meet occasionally to compare sketches, designs, and notes, and occasionally to hear read and discuss a short paper, or papers. The other night the subject set was the somewhat ambiguous one of "The Education of the Ideal Architect"—not the ideal education of the architect. However, be that as it may, three short papers, all on the same subject, were read, and we thought they showed such interestingly diverse trends of thought, with a good deal of originality, that we thought our readers might like to have the benefit of becoming acquainted with them.

The reading of the papers produced a very good discussion at the little meeting.

It is rather a pity that more members of the Association do not attend these Club meetings; the discussions are often instructive and stimulating.—ED.

Mr. C. B. Powell's Paper.

Before we educate the ideal architect we must consider shortly what knowledge he should possess, and then the best method of obtaining it.

Such an architect must be essentially the perfection of an artist in the true knowledge of supreme beauty. His duties call upon him unceasingly to create, often from the crudest materials, structures which shall, as long as they exist, gladden the sight of man, elevating his nature and helping to withdraw it from the mere sordid cares to which the mind is too often a slave.

Perhaps the most essential qualification is a perfect knowledge of proportion and balance of parts. Then he must know the best form to give the building to suit the intended purpose. The nature and properties of the materials he wishes to use must be well known to him, and the strength of every part must be amply sufficient for any strain it may be subjected to.

Now, for the course of study which will assist in developing this knowledge. I say "assist," because an architect is born, not made. I presume the ordinary school course has been completed, and the mysteries of reading, writing, and simple arithmetic fairly understood. At the age of 14 to 15 years, a six-years' apprenticeship to an earnest master should be entered into, and the work of this time generally divided as follows:—

The first couple of years should be spent in learning the ordinary technique of architectural drawing and simple building construction. Punctuality and good time-keeping at this period must be insisted upon, with customs of neatness and precision. The habit of good and earnest thinking must be encouraged, for nobility of thought is the foundation of good design. Then, in the succeeding years, more serious work must be entered upon. The general principles and proportion of mass and detail must be carefully studied and applied in daily work. This application necessarily carries with it sufficient knowledge of simple engineering to solve every problem in architecture. I say this because the true proportion of any part in relation to its position provides within itself the essentials of good construction. This implies, also, the nature and properties of ordinary building materials, the study of which must be pursued at the same time. The last years of apprenticeship should cover the principles of planning, both general and in detail, the arrangement of buildings for different purposes, the placing of structures in relation to site, and general principles of health.

After this apprenticeship a period of four or five years should be spent in the close superintendence of good building work under the control of a competent architect, to learn the methods and practice of the several trades. This part I consider the important of all, as the only way to learn what good work is is to see it done. This experience further creates decision and confidence, and develops thoroughly the reasoning powers.

This course should be supplemented by occasional lectures on historical styles, only in reference to works of real artistic merit, and to an analysis of the causes that have produced them. Care should be taken to keep these discourses restricted to art as apart from archaeology. Instruction is also necessary in symbols and symbolic ornament, forms being illustrated showing their application and suitability to nature of material. Every care should be taken to foster independent thought and encourage departure from stereotyped forms of design.

Perhaps the greatest enemies the student has to encounter during the course are the evil of indiscriminate measuring and sketching, a custom fatal to true thought, and the wish to be examined as to his attainments. No man can examine another in such an art as this. It is the most magnificent and perfect of all. 'Tis the cradle of all others, admitting them without rivalry or competition, using them, indeed, as jewels and gems to enhance the beauty of the whole. It knows and recognises no human laws. Subject it to them and it ceases to exist. Posterity alone can pass judgment on the work we do.

Mr. H. Leask's Paper.

What should constitute the ideal education of the twentieth century architect?—a big question to dispose of in five minutes. The first thought that arises is, what sort of person is the twentieth century architect; what is the educational scheme to produce?

Is it to produce that extraordinary and wholly wonderful person Mr. Pentland described to us a couple of years ago; a person very much more of an engineer than an architect, whose whole life was to be taken up in planning where the electric bell pushes were to go, and in the designing of all his structural steelwork himself, and at the same time produce magnificent architectural conceptions which would be the wonder of the world in their beauty and grace?

"One small head" is too little for all that. Such a person never existed, and never will exist. If our twentieth century architect can produce well-planned, well-constructed buildings, as beautiful as he can make them, and if he has a clear enough business head to manage his client and contractor (without hurting the sense of personal importance of the first, or driving the second into the Bankruptcy Court), and enough sense to recognise and employ engineering and other specialists when they are required, he will be doing well indeed.

Our aim, then, is to educate a moderately sensible youth, with talents and leanings towards architecture, into the fairly reasonable twentieth century practitioner that we have just described. Our youth of sixteen summers has just left school; he thinks he would like to be an architect; his mother says, "George has quite a talent for drawing," and she treasures up his infantile masterpieces; his father grumbles that it costs so much to apprentice him to an architect, and wonders if Mr. —, the eminent C.E., surveyor, valuer, and architect, etc., would take his promising boy at a lower figure.

Well, I say, why begin with the apprenticeship? Why not give him some more schooling in building construction, drawing, etc., first, so that when he enters upon his apprenticeship later he will not be quite at sea, and give him thus a chance to discover whether he has any real aptitude for the work of an architect, and a chance of backing out and taking up something else before papa lays out his hard-earned cash in a premium?

A Preparatory School, then, should be established with moderate fees, which our budding Inigo Jones (along with other ditto) might enter and go through at least a two years' course in drawing, elementary building construction, the study of the main phases of architectural form and history in freehand drawing from the flat and round.

Let me say here that I have no belief in examinations of the ordinary kind, the kind for which it is necessary to cram. I think that comparatively little should be taught, but that little well, and that any examinations in this school should be conducted by the teachers in each subject, and should take the form of a careful reviewing of the work gone through, based of necessity, of course, on the student's answers to questions put; a final lecture after the examination dealing with every question which had been set.

Our student is now, we shall say, eighteen years of age, and neither too old or young to enter on his apprenticeship, or make a fresh start in some other walk of life, should he have discovered his want of aptitude for this one.

This apprenticeship should never be less than three years, and is best put at four. During it he gains a knowledge of office routine, he improves his power of drawing, and he should see as much as possible of work in progress, in the erection of those works with the drawings of which he would be familiar.

He should be allowed sufficient liberty to measure up any good old work within his reach; in fact, to my mind, this is almost the most important matter, next to experience on works in progress, for it educates to a knowledge of how to produce really satisfactory design, as apart from draughtsman's fancies, which look so nice on paper and so unsatisfactory in execution.

During his apprenticeship the student should make the

most of his opportunities in the way of classes in construction, in free-hand drawing from the cast, and perhaps the figure, and he should gain some insight into the design of steelwork, etc. I do not say he should specialise in this latter, but he should obtain a knowledge of its principles, sufficient for the design of ordinary work of the kind in connection with buildings of moderate size, and for the intelligent co-operation with a structural engineer in large works.

What should happen at the end of his apprenticeship, then? I would propose a drastic change from the usual course. It is that, instead of at once purchasing that important-looking brass plate, or hiring himself to an architect as a draughtsman, he should, by hook or crook, manage to spend a year in a builder's establishment, to gain a knowledge of building, and the ways of builders at first hand. Of course, the establishment to which he attaches himself should not be that of the local builder of the town where he intends to practise; it would not be good for either "Inigo Jones" or "Balbus, the wall builder," when they came to act in co-operation later. With this experience, and his education, he should have no difficulty in obtaining a good position as a draughtsman before his final *debut* as the full-fledged article, and as a draughtsman he would have many opportunities of extending his knowledge of all the branches of his profession.

If I have said nothing about design specifically, it is because I take it as a matter of course that our student has studied that from the very beginning of his education, through the book and the measured work stage, the office and the constructional stage, and if he is any good he will go on studying it till the end of his life, always learning, seldom satisfied with his achievements, for self-satisfaction in design is an unhealthy symptom. An architect's education is never over while he still practises.

Mr. F. Sparrow's Paper.

Had I my way the subject would have been the "Ideal Education for an Architect," a mighty different one, for while ideal education may be almost attainable, an ideal architect is a creature of the imagination only; and, as "T-square" so tersely puts it, "a vision that fadeth away." One finds it difficult to contemplate this ideal architect satisfactorily, or even to decide what manner of man he'd be or look like; or, again, in what would his ideality be constituted. Not in success alone, nor in originality, nor in great knowledge alone—these would be but parts of a great whole—essential parts, no doubt, but to them many more would have to be superadded. Success, of course—great unbounded success—in spite of building or any other form of trade depression, would thrust its welcome self upon our ideal; not the success one sees so often in Dublin, where the man who has not studied, nor, worse still, felt his utter lack of study and devoid of even ordinary taste,

erects monstrosities which fill his coffers with fees, his professional brothers with an inward sickness, and the public and the daily Press with great joy. This is not the success I mean, but rather that of Aston Webb and of Norman Shaw and the late John Sedding, though infinitely greater—for none of them I take it we'll admit as ideals.

Education, we are credibly informed, is the acquisition of knowledge, and in our case that knowledge is acquired from books, from office work, from sketching, and from classes, and perhaps the greatest of them all is sketching.

Let us see now what our ideal must know, for only thus, it seems to me, can we conclude along what lines his education must proceed, and let success be taken as one's only axiom. He must be capable of designing any building, from a cat's home to a cathedral, from a bun shop to a brewery, from a rabbit hutch to a reredos; yes, even the range of buildings between a monkey house and a music hall, must come within his ken. He must have originality in abundance; in fact, he must be full of it to bursting point, and, in addition, he must have that great architectural knowledge so undefinable, and yet so real, and gained alone by study, without which originality avails nought. He must have a knowledge of architectural history and design from approximately 5,000 years B.C. to 1907 A.D., so that he may be able to design in any given style to suit the vagaries of his numerous and wealthy clients. He must have an intimate knowledge of the requirements of the aristocracy in the housing matter, and to this he must add a similar knowledge of the wants of every class from royalty to peasant, not excluding the noble army of paupers in their ancestral and draughty workhouses. He must be familiar with the requirements of lunatics, hospital patients, school children, undergraduates, parsons, religious communities, and worshippers of a hundred sects, or how else can he design buildings to suit the wants of these vast communities of people? He must be a master with his pencil, pen, and brush; he must know how to spend his holidays in study, his post-prandial leisure in reading the building papers, and a portion of the night watches in architectural thought. He must have a full and complete knowledge of all building materials and their varied prices, and be capable of writing a specification for any branch of the great building trade. He must know how to lay a brick and wipe a joint and, if needs be, set a mantel register. Someone will say the latter can be done by specialists, and truthfully; but if the architect is incapable of performing these feats himself, how can he preside over the work of the specialist? He should understand the various forms of heating and ventilation in vogue, and every system of lighting, from penny candles to petrol vapour (there are but sixty of the latter), while his knowledge of drainage and the peculiar ways of sewer gas should be profound. To use a colloquialism, he should be a bit of an engineer—civil, mechanical, and electrical. I don't propose to dogmatise how large a bit, but he must, at least, understand the calculation of

BELFAST UNION SANATORIUM AT WHITEABBEY.

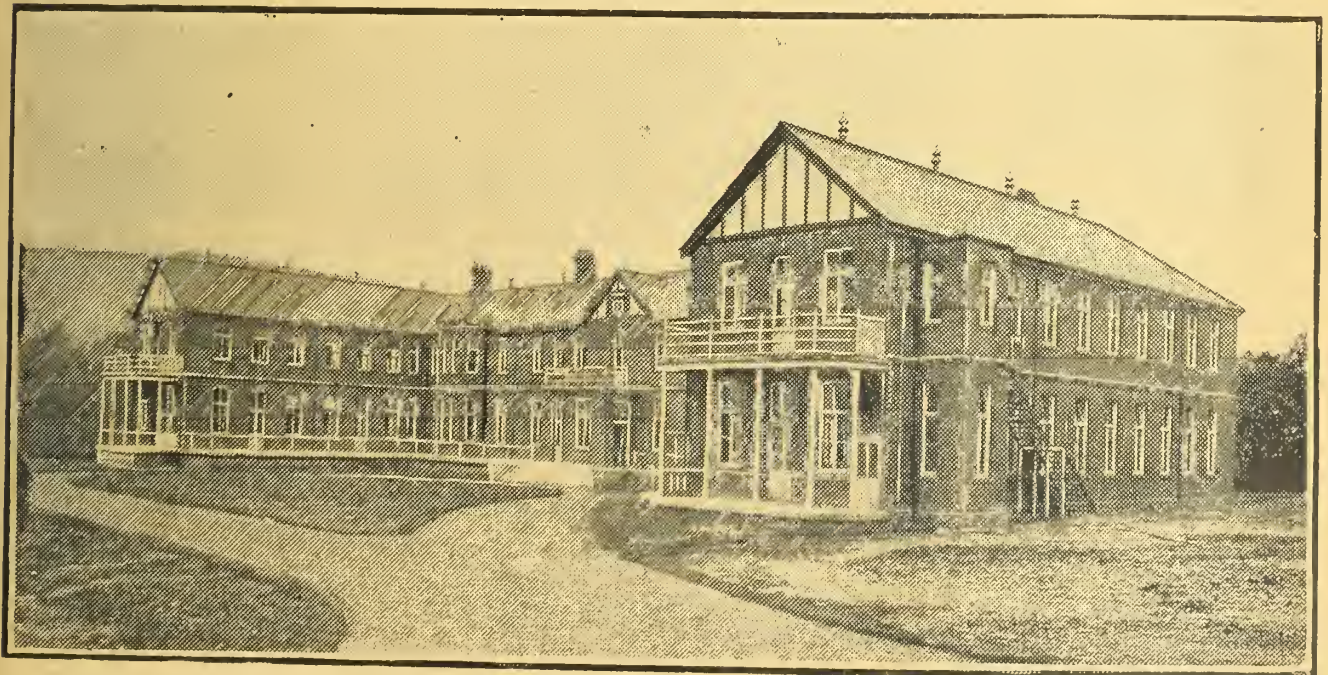


Photo by A. R. Hogg, Belfast.]

The New Hospital at the "Abbey."

[Messrs. Young and McKenzie, Architects, Belfast.]

loads, stresses and strains, and the unaccountable ways of concrete floors. He must be conversant with land, house, and quantity surveying, and a master of the dumpy level. He should be thoroughly imbued with the principles which govern construction, lest haply in an evil moment, or a big storm, his buildings fall to the ground, and he be covered with *debris* and contumely. He must understand the rights of light, of air, and way, and numerous other varieties, and be able to keep, check, or make out accounts, so that he may check the work of the specialist to whom these duties are relegated. He must be a full and complete authority on colour and every other form of decoration, and his knowledge of furniture and fittings must be extensive and peculiar. He must know something of optics, acoustics, hydraulics, and physics, chemistry, geology, archaeology, and Egyptology. He must have pleasant manners, and be impressive withal, or his clients will go further and fare worse at the first opportunity. To these charms he should add an equable temper, a good appearance, some taste in apparel, and rude health. He should be versed in contemporary fiction, and the works of William Yeates and Bernard Shaw, and, above all things, his should be the happy knack of impressing people with his own importance.

A good knowledge of wines, too, would be a mighty attribute, for it is dear to the heart of the well-bred, wealthy client we all love so well. Such, gentlemen, are the essentials, and I don't propose to weary you by enumerating the desirables, such as a singing voice, a sound knowledge of bridge, and, perhaps, some slight skill in parlour juggling, for our ideal, having thoroughly mastered the former, will probably prosper without the latter.

But how is he to master the former; how is this knowledge to be crammed into one small, or even large, head; how is this knowledge to be put to use in one short, or even long, life? Ye gods! 'twould be a strenuous one. Take a promising young man who has just left 'varsity or school, in whom the traits that go to make the architect are strongly marked, fill him to Plimsoll mark with keenness, and put him in a school, college, or office, or combination of the three where all these arts are separately taught, show him the curriculum, and start him at work.

See him wallow in the liquid gold of knowledge, and try to swallow and acquire as much as possible; until overcome with its immensity he loses heart and wallows feebly, while now and then a stifled cry goes up for help. A stockbroking friend stands on the brink and throws a rope, a soldier pal strolls up and chucks another; he seizes one, the easiest

to grasp, and drags himself ashore, removes his hat, and says good-bye to architecture—too strenuous by far.

No, gentlemen, the ideal architect won't do, so let us rather devote ourselves to striving for the ideal system of educating architects—an education which will produce honest, sincere, and cultured architects, with reasonable knowledge, growing from day to day, well filled sketch-books, and the spirit of a man like Sedding.

IRISH MATERIALS FOR IRISH BUILDINGS.

The following letter appears in the current issue of the *Builders' Journal*:—

SIR,—Neither I nor any rational man can object to an occasional engagement of English architects or an occasional adoption of English materials for Irish buildings. The point I wished to emphasise was, that at the present moment Ireland is in a state of industrial stagnation, and in these circumstances it is the duty of any National Government to spare no effort to assist those in Ireland who are working for the revival of national industries. It is a fact well known to those who have studied the question that for many years past it has been the custom of the powers that be to go outside Ireland for the majority of the technical and administrative men for the various Government and other appointments. This is because the "natives" are distrusted by Dublin Castle and Westminster, although everywhere outside their own land they are in the front of every profession. Whilst politicians are pulling each others' legs by giving appointments in Ireland to their various supporters in England and Scotland, Ireland is on the road to industrial ruin, and some of the finest specimens of manhood that these islands have produced are being lost to the Empire, and fleeing in their thousands to swell the ranks of the great republic of the West.—Yours truly,

London, W.

EDWARD McDONALD.

We are indebted to Messrs. W. and G. Baird, Belfast, for the illustrations of the Belfast Union Sanatorium at Whiteabbey, which appears in this issue.

An important notice issued by the Director of Army Contracts, regarding works and repairs to military buildings in the United Kingdom, appears in our advertising columns this week, to which we would direct the attention of our readers.

BELFAST UNION SANATORIUM AT WHITEABBEY.

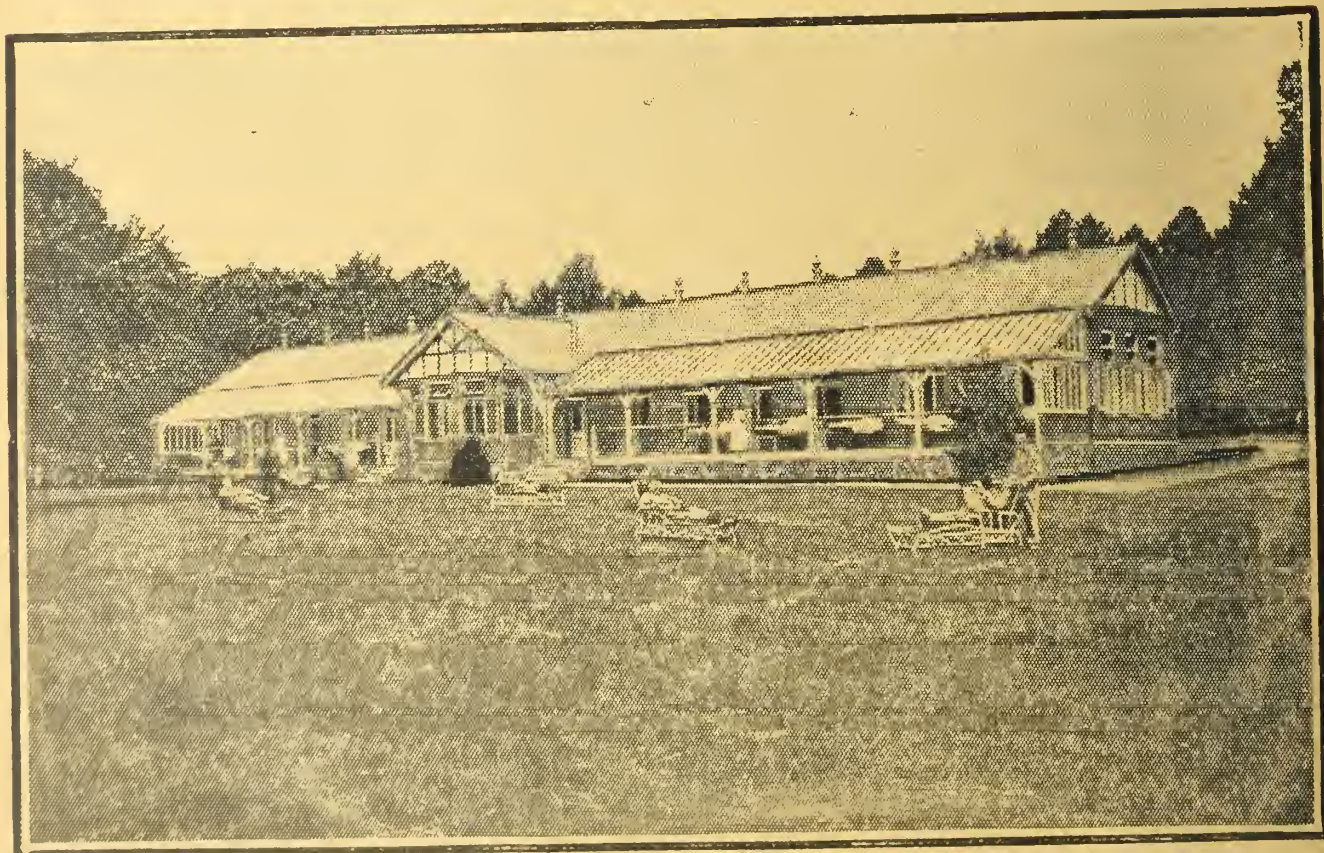


Photo by A. R. Hogg, Belfast.

The Men's Pavilion.

[Messrs. Young and McKenzie, Architects, Belfast.]

"SIMPLEX" CONCRETE PILING.

There was a large and representative attendance of engineers and others interested at a demonstration in the work of concrete piling given by Messrs. J. and W. Stewart, contractors, Ormeau Road, Belfast. The utility and advantages of the system were exhibited and explained by Mr. W. J. Stewart and Mr. Thos. L. Moore, manager of the firm. It may be stated that there are two principal methods of placing the Simplex piles. The first is the cast-iron point driving form method. A sleeve of steel tube called a form, generally sixteen inches outside diameter, is fitted with a loose cast-iron point and driven down to the hard pan in the usual manner. The form is then filled to a height of several feet above the ground level with plastic concrete, and special heavy tackle, capable of exerting a pull of over fifty tons, is coupled on, and the form is steadily withdrawn from the ground. As the tube is withdrawn the concrete issues from the lower end under considerable pressure, and thoroughly fills up the space left in the ground. This is evidenced by the concrete sinking steadily as the form goes up, so that when the latter is drawn clear of the ground level the top of the concrete will have gone down from five feet to ten feet, according to the length of the pile and the nature of the soil. The cast-iron point, which is held tightly to the form by the pressure of driving (an absolutely water-tight joint can be secured if necessary) remains in the ground when the form is pulled. The second is the "Alligator point," driving form method. The procedure here is identical with the last, except that the end of the form is fitted with a cast-steel sleeve, to which a pair of cast-steel jaws are hinged. The jaws interlock in such a way that the force of the driving tends to keep them tightly together, but immediately the pulling of the form is in operation the jaws swing open, and leave the full bore of the tube perfectly clear for the concrete to emerge. This method saves the cast-iron points to each pile, and works admirably on all moderately soft soils. The advantages of vertical moulding of concrete piles are well known. The "Simplex" pile must of necessity be vertically moulded. The drawing away of the steel form creates a grinding process, which adds greatly to the strength of the concrete itself, the considerable pressure to which the lower part of the pile is subjected, and the prolonged rubbing together

of the particles in the upper part by the process of pulling the form automatically produces a remarkably dense uniform concrete in the finished pile. In the demonstrations the first pile occupied thirteen minutes in driving, and went down thirty-one feet, the last few blows sending the form down half an inch each blow, with a drop of from eight to nine feet. The filling of the form with concrete, the drawing of the form and the shifting of the machine in position for another pile, occupied another forty-five minutes, or in all less than one hour from the first pile was ready until the second pile was ready for driving. The second pile went down a distance of thirty-six feet, the last thirty-two blows sending the form eight inches with a drop of from six to seven feet, or an average of a quarter of an inch each blow. It is claimed that the great advantages of this system of piling are rapidity of construction, as the concrete pile, being formed in situ, there is no delay in awaiting materials, as all that is required is sand, stones, and cement; and, as well, the piles can be put in to any depth required, which may be known only as the piling is being done. Thus, if one portion of the ground requires piles twenty feet long, and another portion seventy feet, all that is required is in the one case to drive the form twenty feet until it comes to the hard, and in the other case to drive the form with a follower seventy feet until it reaches the hard, and then fill up with concrete. Already over 6,000 piles, varying from twenty to seventy feet, have been driven in England and Scotland, and in no single case has a failure been reported. No fewer than 510 piles have been put in in less than five weeks, and 1,215 in less than thirteen weeks in another contract. An eminent engineer present computed that the cost is no more than square timber piling, and where a large number of piles is required it would be less. Messrs. J. and W. Stewart are the sole licencees for the Simplex piling in Great Britain and Ireland. Amongst those present were:—Messrs. H. A. Cutler, M.Inst.C.E. (city surveyor); W. Redfern Kelly, M.Inst.C.E. (engineer-in-chief to the Belfast Harbour Trust); Fred. W. McCullough, M.Inst.C.E. (engineer to the Belfast Water Commissioners); George Elhott, M.I.M.E.; John Fraser, C.E.; E. S. Pinkerton, A.M.I.C.E.; J. E. Croasdaile, B.E.; H. F. Gullan (superintendent of works, Belfast Corporation); J. B. Robinson, M.R.I.A.; R. Sharpe, C.E.; H. S. Gilbert, Acheson Ferguson, A. Carsewell, J. M. Martin, J. C. Marsh, C. Aicken, B. Croft, F. A. Porter, J. Napier, J. P. Culverwell, C.E.; J. Martin, Craig, Glendinning, etc.

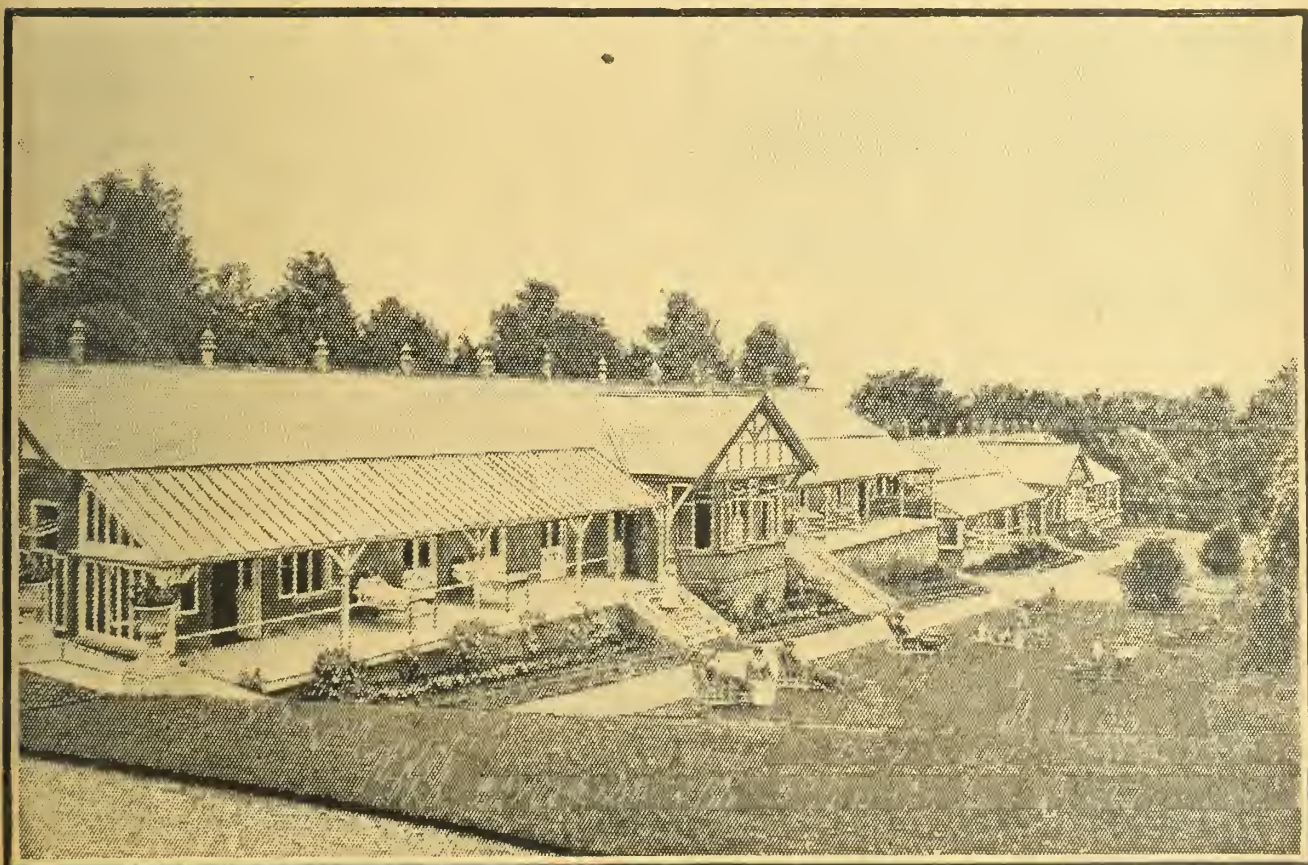
BELFAST UNION SANATORIUM AT WHITEABBEY.

Photo by A. R. Hogg, Belfast.]

The Women's Pavilion.

[Messrs. Young and McKenzie, Architects, Bel. 1st.

THE ARCHITECTURAL ASSOCIATION OF IRELAND.

On last Tuesday evening, in the Hall of the Architectural Association, a lecture was delivered by Mrs. Kingsley Tarpey. Mr. R. M. Butler, F.R.I.B.A., presided, and there was a large audience.

The Chairman mentioned that the subject of the recording by measurement or photography of the eighteenth century work in Dublin had made satisfactory progress. The conference of representatives of the Association, with Dr. McDowell Cosgrave, Mr. Geo. Dames Burtchatel, and one or two other gentlemen, had resolved themselves into a Provisional Committee, Dr. Cosgrave and Mr. Page L. Dickenson consenting to act as hon. secretaries (*pro tem.*). The sympathy of the Royal Irish Academy had been secured, and the use of the Academy House for the purpose of holding a public meeting at an early date had been kindly promised. Members of the Photographic Society had also promised their support, and Dr. Cosgrave and Dr. J. P. Mahaffy and two other gentlemen had offered prizes for photos or drawings.

Art in Every-day Life.

Mrs. Kingsley Tarpey, who was received with applause, said that she had called her paper "Art in Every-day Life" because she wanted a plea for some acknowledgment of the importance of art in ordinary homes and amongst ordinary people. There was a tendency among people who would call themselves "ordinary" to regard the artist as a strange erratic being, from whom it would be useless to expect the usual standard of life and conduct. And perhaps the artist was himself sometimes to blame for the view. He was guilty now and then of posing as having a temperament, of being remote, aloof, and indifferent about the merely worldly and business aspects of his work. His attitude suggested that his art, which in this mood he spelt with a big A, was altogether above the head of the man in the street. It was small wonder, then, that the ordinary person, with a healthy dislike of this pose of superiority, should take the view that the whole affair was no concern of his. She would suggest that that idea was utterly untrue and unsound. Art in some shape or form was inseparable from civilised life, and those who were indifferent or careless or ignorant about art did not succeed in doing without it, but instead helped to degrade and lower the thing they despised, and to vulgarise their surroundings. Let them go back a little in the world's history and see what they had discovered about the origin of the earliest remains from times so remote that dates became a mere matter of speculation, and could not be fixed within some thousands of years. They dated from the time when Northern Europe was covered with a huge ice-cap, as it were. But the palæolithic artist was then beginning, as they would admit when they saw his drawings. Their strange and masterly scratchings on mammoth bones were a highly developed form of art. With the aid of lantern slides several of these were illustrated. The lecturer then referred to the history of ancient Egypt, and said that but for its monuments and the wall paintings in the tombs they should know little or nothing of that history. She gave an interesting sketch of that history, which she illustrated with lime-light views of the art, sculpture, and paintings, and inscriptions in hieroglyphics of the time of which she treated. In a similar way, and in a most interesting form, she dealt with the sculpture of ancient Greece and of Rome, and then she exhibited a series of slides, showing the advance of art in England, France, Ireland, and other countries from early Christian times down to the Middle Ages, and then continued with illustrations of the armour and costume of the Age of Chivalry.

A vote of thanks was proposed by Mr. E. Bradbury, and seconded by Mr. G. F. Beckett.

BOOKS RECEIVED.

"Principles of Reinforced Concrete Construction," by F. E. Turneaure, Dean of the College of Engineering, University of Wisconsin, and E. R. Maurer, Professor of Mechanics, University of Wisconsin. First edition. First thousand. New York: John Wiley and Sons. London: Chapman and Hall, Ltd. 1907.

ARCHITECT'S CERTIFICATE IMPUGNED.

On Wednesday last, in the Land Judge's Court, before Mr. Justice Ross, sitting as a Chancery Judge, the hearing was commenced of an action in which Messrs. Dougan and Titterinton, Ltd., contractors, Montgomery Street, are plaintiffs, and the Economical Housing Company, Ltd., 13 East Wall, Dublin, and Mr. F. W. Higginbotham, architect, 9 Lower Sackville Street, Dublin, are defendants. The plaintiffs seek a declaration that the final certificate of 1st February given by Mr. Higginbotham as architect for the defendant company, finding the sum of £71 3s. 2½d. due to the plaintiffs on foot of a building agreement of 7th December, 1903, was a fraud on the plaintiffs, and should be declared as not binding on them by reason of alleged collusion between the defendants, and that the certificate should be declared invalid by reason of the deduction of penalties therein set out, which should have been included in the certificate. The plaintiffs further asked that they should be declared entitled to receive all sums properly payable in respect of works done under the agreement so far as same had not already been paid. They also asked for an account. The agreement was for the building of five blocks of artisans' dwellings for the sum of £3,110, and plaintiffs pleaded that great delay to the work was caused by the defendant company. Delay was also caused by bad weather. The final certificate of Mr. Higginbotham found £71 3s. 2½d. due to the plaintiffs, and also purported to deduct £210 in respect of interest on the amount of the contract, owing to the delay of the plaintiffs in the completion of the works. The plaintiffs pleaded that Mr. Higginbotham made the deductions by direction of the defendant company, and that he thereby disqualified himself from acting as a fair and impartial arbitrator under the agreement. In their defence the defendant company denied there was any agreement or arrangement with the architect at any time as to the issuing of a certificate. They said no unreasonable delay took place on their part. The plaintiffs, they said, were bound to complete the works in a specified time, and failed to do so, although they could have been completed within that time. They denied that any directions were given by them to the architect in respect of the final certificate, and submitted that the certificate was valid, final, and conclusive, and that the taking of an account would be superfluous and unnecessary. Mr. Higginbotham, in a separate defence, pleaded that no unreasonable delay took place in granting interim certificates by him, and submitted that throughout the whole contract he acted fairly and impartially between the plaintiff company and the defendant company. He said the works were not started promptly by the contractors, and did not proceed satisfactorily. The plaintiff company delayed the works, but were not delayed by any default of the defendant company. There was no delay, he alleged, in issuing the final certificate, and no directions whatever were given to him by the defendant company to delay same. He positively denied that there was any fraudulent or collusive arrangement between him and the defendant company.

Mr. Ronan, who stated the case for the plaintiff company, had not concluded at the rising of the Court.

Counsel for the plaintiffs—Mr. Ronan, K.C., and Mr. G. F. Brunskill (instructed by Mr. R. N. Potterton).

For the defendant company—Mr. O'Brien, K.C.; Mr. Jellet, K.C.; and Mr. Pigot (instructed by Messrs. J. L. Scallan and Co.).

For the defendant, Mr. Higginbotham—Mr. Littledale, K.C., and Mr. Philip White (instructed by Messrs. Scallan)

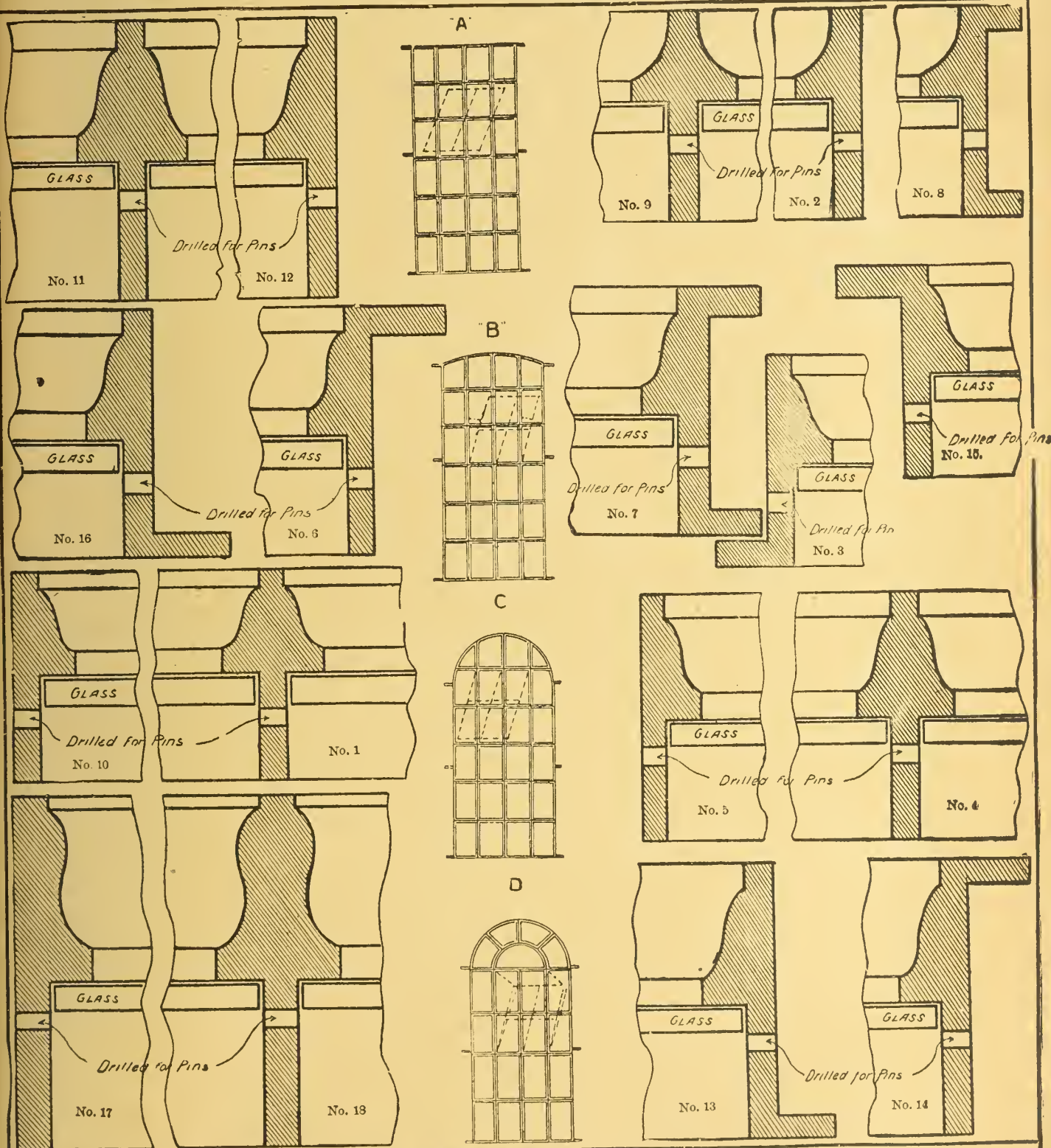
The *Freeman's Journal* reports that complaint has been made to the Dublin Industrial Development Association of the difficulty of obtaining Irish-made cement. According to an architect, that material had been certified for in several large works, but as it could not be readily supplied, English manufacture had to be substituted. As there is a fairly large demand for cement in Ireland, he suggested that a factory should be established. The matter has already been discussed by the Association, and the letter of the architect is only one of several substantial proofs that the supply of Irish-made cement is not equal to the demand. All Irish capitalists cannot be ignorant of these facts, showing on the best authority that the industry could be developed with profit, and the setting-up of at least one more factory may be expected to result from the attention recently bestowed on this subject.

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CONTENTS.

	PAGE.
Topical Touches	813
The Education of the Ideal Architect	814
Irish Materials for Irish Buildings	818
"Simplex" Concrete Piling	821
The Architectural Association of Ireland	822
Architect's Certificate Impugned	822
LEADING ARTICLE :—	
School Building in Ireland	824
COMMENTS :—	
Sand for Concrete and for Cement Mortar	824
A New Fire-Proof Floor	827
Building News	829
Graves' Patent Roofing	830
German Opinion of Sand-Lime Bricks	830
Engineering Items	833
Mr. Edison's Concrete Houses	834
Land Treatment of Sewage	836
Engineering News	837
Correspondence	838
Contracts	839

SCHOOL BUILDING IN IRELAND.

Our readers are probably aware that for some time past there has been in operation a most satisfactory abandonment of the principles upon which National Schools in Ireland are planned. Many years ago, the Board of National Education had an architect and a staff of their own to deal with building matters connected with the building of schools, and managers of schools were permitted to employ architects to design schools for them. Later the office of architect to the Commissioners was abolished, and the staff absorbed in the Board of Works, and after a little time the iniquitous practice of supplying stereotyped plans of schools and teachers' houses free to managers was initiated. Managers were still permitted to employ, at their own expense, architects to design schools for them; but they were hampered both by out-of-date theories in design and considerations of cost, with the result that the whole art of school planning, which during all these years was being developed on the most scientific lines in England, Scotland, and abroad, if it did not absolutely retrograde, certainly stood still, until a few years ago, when the attention of the Government was directed to the matter. At that time the Irish schools were about the worst-planned in Europe. The free stereotyped plans, of which most of the managers economically availed themselves, represented practically and artistically the very worst type of school that could be devised, and quite unsuited to educational purposes. At the time we speak of, a private commission was appointed, and, of course, condemned the plans then in vogue, and new designs were got out, but never put into circulation or published. Of course, in order to improve school design, some increase in the miserable, inadequate building grants was absolutely necessary, and here the Treasury stepped in, blocking all progress.

Building grants have now been, to all intents and purposes, suspended for five years or thereabouts, during which time, of course, schools ceased to be built.

Quite recently, however, a new departure was made, and this it is which we describe as the satisfactory innovation. Little outline plans of schools, together with certain instructions, have been issued to the managers, with the recommendation to employ independent architects to prepare designs, but only pending the completion of new stereotyped plans. But why should these ever be completed and put into circulation? Doubtless, the managers—demoralised for years by these cheap and nasty eleemosynary plans—clamour for a continuance of the evil system. Doubtless, the new design may be an improvement on the old—and that is not saying very much for them, for the old could not have been much worse—but that is not the way to get good schools, well planned, economical, and suited to the educational requirements of the day. The condemned plans entirely outlived their day—if they ever had one. How long may the new designs be expected to remain the enforced fashion? Such things are, in Ireland, reckoned not by years, but by decades. Probably, if adopted now, our grandchildren may see the next design. The whole question of planning any kind of a structure is varying through the passing of time and the gaining of experience. Through failure we learn success, until our experience becomes ripe. As a matter of fact, in no class of building is there so great need for change and improvement as in school-planning, the requirements vary so greatly, and teachers' ideas grow and develop on the subject of teaching. Some of the largest and most up-to-date buildings of the London School Board are out of date a few years after being built, so rapidly have matters educational developed. And during all this time Irish architects have almost forgotten how to plan a school; at all events, they never get the opportunity of designing a school for either town or country on really modern lines. They have no incentive to become acquainted with, and no opportunity to put into practice, the gathered and garnered experience and skill of their brethren in other lands in this respect, and the funds available are miserable and inadequate. England and Scotland have progressed year by year. School-planning is a serious science, and not lightly to be undertaken or easily fulfilled. There, there are no stereotyped plans. Considerations of aspect, site, and general requirement rule the plan.

Instructions are given in a series of well-thought-out, practical rules for planning, mainly the result of much experience. Every site is viewed on its own merits, the requirements studied, and the building grants adequate. It is difficult to see what, save retrogression, would result from a reversion to the bad old demoralising system.

The country is full of talk of industrial, lingual, and national revival, of progress, of energy, of education. Is it too much to suggest that the tying down and fettering to one plan of stereotyped form is a most culpable piece of bad government? Why! schools should be the best-planned and most up-to-date structures in the whole country, constantly improved, and day by day made more fitted for their purpose.

COMMENTS.

Sand for Concrete, and for Cement Mortar.

Sir Weetman D. Pearson, Bart., the well-known and extensive contractor, and recently prominent as the plaintiff in the big case against the Dublin Corporation, lately gave it as his positive opinion that the days of lime mortar in building works are absolutely numbered. Much better, quicker, and cheaper work was obtained by the use of cement and sand—five or six to one—than with lime mortar.

There can be no doubt but that in many cases where lime is not to be had in the immediate vicinity, and is consequently expensive, and where, on the other hand, good sand is plentiful and cheap, the proper thing

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"Junior" " " "

No. 2 Heads, Sills, Steps, Coping. "

No. 3 Batch Mixer. " " "

Specimen of Labourers' Cottage, on the plan which was awarded the First Prize by the Local Government Board, has been erected with blocks made on the "Junior" Machine at the Dublin International Exhibition (Irish Industries Section) where machine can be seen.

Full particulars from

The Concrete Machinery Co., Ltd.,

18 WATER STREET, LIVERPOOL.

Agent for North of Ireland—Mr. W. J. SHAW, Donegal Square West, Belfast.

to do is to use cement and sand, as recommended by Sir Weetman. It is folly to transport lime long distances at great cost, where the other alternative is available. We refer in particular to seaside places in remote situations, and it must be remembered that lime is a difficult thing to transport; many carriers object to convey it.

In this connection, it is remarkable how strong the old-fashioned prejudice against the use of sea sand still is, particularly in Ireland. In many parts of the country it is firmly believed that it causes a damp wall. Some people even go so far as to object to the use of sea sand in external cement plastering.

Of course, it is a fallacy to say that sea sand of the right kind causes damp; it is usually, however, considered prudent to take it from beyond the reach of ordinary high tides.

It is curious to note that all the recent important American works on concrete, whether plain or reinforced, which, with the French works, really constitute the literature of the subject, are silent on the subject of sea sand, the inference being that it does not appear to have occurred to them that it would be regarded as objectionable.

In a standard American specification given in Sabin on "Concrete, Plain and Reinforced," the clause dealing with sand is brief in the extreme; it runs as follows:—

"Sand: The sand shall be clean and coarse, or a mixture of coarse and fine grains, with the fine grains predominating. It shall be free from clay, loam, sticks, organic matter, and other impurities."

In a footnote the author observes that: "Concrete construction is not prohibited if sand of the quality designated is unobtainable; but coarse sand should usually be selected in preference to fine, even if its cost is double or three times the latter."

In another place the same author observes that "*the requirement of sharpness for sand should be omitted from concrete specifications.*" The italics are the author's own. He says that in times past specifications invariably demanded "sharp" sand, in spite of the experience that in parts of the country, where sharp sand was quite unobtainable, equally good work was done with sand having rounded grains, which was used "with perfect satisfaction." Sabin goes on to say that laboratory tests, under conditions as nearly as possible identical, uphold the practice of using sand with rounded grains. They indicate that the chief difference in natural sands is due to the *size* of the grains; and while the "sharpness" of the sand may exert a certain influence, it is of much less importance than the *size* of the grain. Mixed sand, containing both fine and coarse grains, in mortars leaner than one or two, usually produces stronger and more impervious mortars than coarse sand alone. Another conclusion arrived at by Sabin is that gauging with sea-water does not affect the ultimate strength of the mortar; and he goes on to impress on his readers that a good sand brought from a distance at a high price may be more economical than a poor sand from close at hand.

M. Condit (who wrote a valuable work, "Ciments et Chaux Hydrauliques," 1898), M.M. Feret (Chief of the Laboratory of the Ponts et Chaussées at Boulogne) and Alexandre, in their "Annales des Ponts et Chaussées," 1890, made some most valuable experiments, and record same. Some of the most dearly-cherished notions of engineers are undermined; for instance, the effects of re-gauging cement mortars and concretes. With singular unanimity these authors, and others, declare that for Portland cements it is unnecessary to use it immediately it is mixed; that it may remain at least two hours in the mortar-bed without deterioration; in fact, its ultimate tensile and compressive strength appears to be increased—in fact, continuous re-gauging increases the ultimate strength!

D. B. Butler, the English writer, has nothing to say on the subject of sand in his work on "Cement."

Marsh and Dunn (an American and an English author in collaboration), in the last edition of their work entitled "Reinforced Concrete," published by Messrs. Archibald Constable and Co., 1906, and about the best and most exhaustive English work on the subject, are almost silent on the subject of sand.

Another subject in connection with sand is the question of loam or clay in the sand. In that standard American work, Taylor and Thompson on "Concrete, Plain and Reinforced," the authors remark that it is impossible to make a general statement that clay or loam is beneficial or otherwise to sand; in some cases it is undoubtedly a benefit, in others the reverse, depending upon the richness of the mortar and the fineness of the sand. In some cases the mortar may be improved by the substitution of a dirty sand for a very clean sand. (In dealing with American and other modern works, it must be remembered that the term "mortar" is commonly applied to mixtures of cement and sand or gravel.) Mr. Grisesenaur records from some experiments that lean mortars may be improved by the addition of some small quantities of loam, while in rich mortars, where the cement furnishes all the fine material required, the addition of loam would be detrimental. He says that 2 per cent. of loam slightly reduced the strength of one to two mortar, while 20 per cent. added to two parts of sand reduced the strength by 30 per cent. In one to three mortar, on the other hand, the addition of 2 per cent. slightly increased the strength, and there was no appreciable injury up to 20 per cent.

Mr. E. C. Clarke, in the tests for the Boston Main Drainage Works, showed that clay "in moderate amounts (10 per cent. to 30 per cent. of the sand) does not weaken cement mortars." Calcareous marl, M. Alexandre found, did not, by its presence in sand, cause other than "excellent results" to be obtained.

The subject is an extremely interesting one, and might be pursued at great length. The French and American works afford a wonderful field for study, superior to anything that has so far been published in England.

The observations made by the various authors above referred to are the more curious when we recollect the, what we fancy, weak proportions that concrete is used at in the United States; but the fact is that far more depends upon the quality and condition of the cement, the care with which it is kept, the care and thoroughness of mixing, the intelligent choice of the materials, cleanliness on the mixing board*—in a word, on intelligence generally, rather than on the exact proportion of cement used. Taylor and Thompson define a lean mixture for unimportant work in masses where the concrete is subjected to plain compressive strain, as in large foundations, supporting a stationary load, or backing for stone masonry; the proportions are one part Portland cement, four parts loose sand, eight parts loose gravel or broken stone (or twelve to one); and the authors add that the above is based upon fair average practice. If the aggregate is carefully graded, and the proportions are scientifically fixed, smaller proportions of cement may be used. In this country, we fear that careless mixing and handling result in loss of strength, necessitating the addition of wasteful proportions of cement, to make up for careless mixing, and lack of intelligence in selecting the sand or gravel.

We may mention that Messrs. Wiley and Sons, of New York, have just brought out a new book on "The Principles of Reinforced Concrete," by F. E. Fourneaur, Dean of the College of Engineering, and E. R. Maurer, Professor of Mechanics, both of the University of Wisconsin, U.S.A., and have sent us a copy, which we purpose reviewing in our next issue. This work concerns itself mainly with the theory of reinforcement, rather than with practice.

*Taylor and Thompson insist that the mixing-board be raised six inches above the ground—a very sensible precaution.

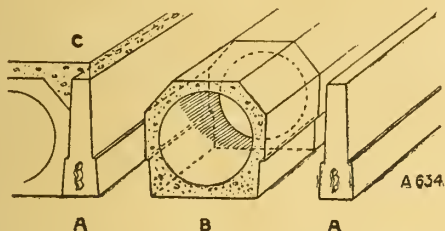
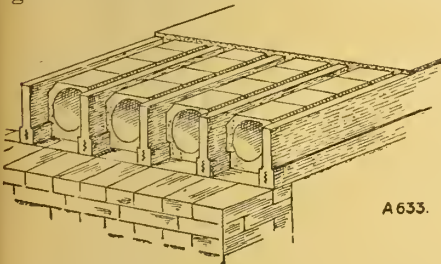
A NEW FIRE-PROOF FLOOR.

(By OUR NORTHERN CORRESPONDENT).

By invitation of the directorate, I inspected, last week, a fire-proof floor being erected at the premises of Messrs. Morrison and Metcalf, Grove Mill, Belfast, by the Irish Armoured Tubular Flooring Co., Ltd., who are the sole licensees for Ireland of the patent embodied in the floor referred to. At first sight, it is a startlingly uncommon patent, for, consisting as it does of re-inforced concrete, one might watch it being put together without being aware that iron in any form is present. As I believe it has come to stay, and is most certainly one of the best, as it is one of the newest, things on the market, I have obtained, by kindness of the Company, the blocks from which the following illustrations are reproduced:—

They are so clear as to be almost self-explanatory. As shown, the floor consists of concrete joists or webs, marked A A, in the lower part of which a small corrugated steel

re-inforcement bar of special design is embedded, and of hollow tubes, in 8-inch lengths, made of concrete, composed of slag and cement, the construction being completed by floating a layer of concrete on top, which fills the triangular spaces between webs and tubes, and binds the whole together. The webs and tubes are made at the Company's



factory, situate in Cooke Street, Belfast, and are consequently set when used in the building. Only the finishing layer of concrete is made *in situ*. It is all very simple—even to the point of triteness.

Now, the engineer or the architect may work out his designs in reinforced concrete with the utmost heed, may calculate his strains to the greatest nicety, but the quality pre-eminently needed by the finished product is carefulness of manufacture. Without this, all the others count for little, and may go for naught. It follows, then, that this essential quality will be more certainly supplied by the specialised workmen and the close supervision of a company who have to succeed or fail by the character of their manufacture, than it will be supplied, in average circumstances, by the variable conditions of training in labour and skill in construction employed under building contracts. Besides, in the immediate case, transit from the place of manufacture to the place of use, provides a considerable test for discovery of flaws, the nature of the manufactured article being considered.

The second great advantage of the system under review is the rapidity with which floors, constructed on its principle, can be laid, as well as the immediate use that can be made of such floors, and consequent obviation of delay in progress with the building structure. The webs may be laid as quickly as ordinary flooring joists, and the tubes *pari passu* filled between. There is no painful waiting for the floor to set before work can be proceeded with, as the top layer of concrete need not be immediately added, and so cannot be damaged. The tubes, too, form excellent media for ventilation or the passage of gas and water-pipes, electric wiring, and the floor, when complete, is very sound-proof. Further, its own dead weight does not exceed half that of ordinary solid concrete flooring. The upper surface can, of course, be finished in any way desirable, and the soffit may be left plain or skimmed with lime putty, etc., for which it has sufficient key. The fire-resisting and load-bearing qualities of the flooring may be learned from the Official Reports of the British Fire Prevention Committee in London—Publications Nos. 119 and 125. The fire test consisted of subjecting 247 ft. sup. of the flooring to a temperature ranging from 1,800° to 2,000° Fahrenheit, followed by the application of water from a steam fire-engine for five minutes, the load carried during the test being 2½ cwt. per ft. sup. Neither fire nor water having passed through the floor, a "Full Protection" certificate was given. One only of the load-bearing tests need be given, as follows:—The beam or slab consisted of three webs each 9½ inches deep, 3 inches wide, on soffit, reduced to 1½ inches thick, 2 inches above the soffit. Embedded in each web, about 1 inch above

the soffit, was a wrought-iron corrugated bar, 1½ inches by 5-15th inch. Hollow concrete tubes, 9½ inches deep, 8½ inches wide, and 8 inches long, were made with a rebate on each side to correspond with the rebate on webs. The webs were made in timber moulds. The concrete for them was composed of one part of Portland cement, two parts of shingle, passing a ½-inch mesh, and one part of sand. The tubes were made by a hand-press, and composed of one part of Portland cement, 7.5 parts of coke-breeze, and five parts of sand. The span of the beam was 14 feet, and it was to be loaded to destruction. It was designed to carry a safe load of 1½ cwt. per ft. super. In a preliminary deflection test, the slab was loaded with 5 cwt. per ft. sup., the deflection being 0.3 inches, and the slab returning to the normal on removal of the load. In the breaking test, the slab failed by breaking in the centre under a load of 12 cwt. 1 qr. 14 lbs. per foot sup., thus giving a safety factor of 8. It cannot be questioned that the above tests, which are, of course, wholly reliable, leave nothing to be desired in respect either of fire-resisting or load-bearing qualities.

In respect of cost, also, the new flooring has everything in its favour. It is standardised in four depths, viz., 7 inches, 9 inches, 11½ inches, and 14 inches, for spans up to 30 feet, to carry safe loads of ½ cwt. for domestic and office buildings and roofs; 1 to 1½ cwt. for warehouses; and 2 to 2½ cwt. for factories and stores. The Irish Armoured Tubular Flooring Co., Ltd., have quoted me the price of 12s. 6d. per square yard for a floor, 14 inches deep, 20 feet span, and bearing a safe load of 2 cwt. per ft. sup. This includes laying the floor in Belfast, with ordinary concrete finish on top and plain soffit. Now, the most economical fire-proof floor within my knowledge is in an important Government building here. It is of identical span and calculated for the same weight-carrying. Its cost was 17s. 4d. per square yard. The chief saving is in steel, the tubular flooring above quoted for having 30 lbs. per square yard as against 122 lbs. of the older type. The absence of centering also in the new floor furnishes a considerable saving. On the other hand, it takes up greater depth—viz., 14 inches, as against the 7 inches of the floor above compared. Assuming 23-inch walls, and allowing for this extra 7 inches in height, adds 1s. 6d. per square yard to the cost of the new flooring, making it thus, comparatively, 14 shillings per square yard. But even this leaves it 20% cheaper. Finally, it commends itself for adoption in Ireland in the facts that the capital of the company exploiting it has been all raised locally, that all the materials employed in its manufacture, with the exception of steel, are of Irish procurement, and that all the labour in connection with it is found in Ireland. The chairman of directors is Mr. T. Mackie, of T. Mackie and Son, Albert Foundry, Belfast. Mr. Walter Hume, one of the fire assessors in Ireland, is another director, whilst the managing director is Mr. David Donaldson, a Belfastman, who has had a wide and varied experience as architect, surveyor, and engineer of works in Dublin, Belfast, Edinburgh, Glasgow and London. He was for many years on the staff of the Board of Public Works in Ireland, carried out extensive fortification works on the Clyde, on the Royal Engineer Staff, and latterly had entire control of the erection and completion, for the Waring White Company, London and Liverpool, of that most interesting example of modern architecture and steel construction in London—the new offices for the *Morning Post*. The architect and engineer, therefore, may confidently appeal to, and have confidence in, his trained judgment and wide experience. The factory and registered office of the company is Cooke Street, Belfast, where a pamphlet giving full particulars of the new manufacture may be obtained.

♦♦♦♦♦

IMPORTS.
Port of Dublin.

November 13—Per ss. Minerva, from Oporto, 2,000 pigs, lead, to order.

November 15—Per ss. Ramore Head, from Galveston, 207,741 pcs. staves, 7,834 pcs. firwood, to order; per ss. Lady Wolseley, from London, 900 sacks cement, T. Archer.

November 19—Per Enriqueta, from London, 400 tons cement; per Rovbaix, from London, 600 tons cement, Betson and Co.

November 20—Per ss. Maggie Warrington, from Ghent, 11,168 bags cement, to order.

November 22—Per ss. Bengore Head, 5,378 staves, 733 loads firwood, to order. Per Irishman, from Toberonorhy, 200 tons slates, W. and L. Crowe, Ltd. Per Reward, from Rochester, 275 tons cement, A. Agnew.

November 26—1,000 sacks cement, per Lady Roberts, from London, for A. Agnew; 700 sacks cement, per same vessel, to order.

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Articlave.—The foundation stones of the Mark Memorial Hall were laid. The Hall, it is estimated, will cost something over £1,000. The trowels presented to the gentlemen who laid the stones were given by the committee of the congregation (3), Mr. William Gould, contractor (2), Mr. S. J. McFadden, architect (1), and Mr. David Warke, Ballywoodock (1). The Hall is conveniently situated opposite the church, and will be a building of Gothic design; the main hall, 54 feet by 30 feet by 15 feet in height to the top of the side walls; and having two transepts, each 15 feet by 14 feet, divided from the main hall by sliding partitions, which can be closed when the rooms are required as class-rooms, or opened to augment the accommodation for important meetings in the main hall. A platform will occupy portion of the end opposite the principal entrance for use in public meetings, lectures, concerts, etc. A commodious kitchen and a cloak-room will be provided in the rear of the platform end; the heating chamber being underneath the kitchen, hot-water pipes being the mode of heating adopted (high-pressure system). The walls inside the hall will be plastered, and the ceiling will be in the form of panels, in Carolina pine, the roof to be supported on four principals of pitch pine, with arched ribs, forming an ornamental feature of the hall. The facade will be centred with a wide folding door, opening into the vestibule, on each side of which will be a cloak-room. Above the door there will be a three-light Gothic window. Each side-wall is to be pierced by three double-lanced windows, in same style, and each transept will have a three-light window. The architect is Mr. S. J. McFadden, C.E., Coleraine; and Messrs. Wm. Gould and Co., builders, Coleraine, have been entrusted with the contract.

Belfast.—The Great Northern Railway invite tenders for the erection of a single-storey cottage at Belfast. Tenders to be lodged before the 9th inst.

Clones.—At a meeting of the Urban Council, Mr. T. Gray, whose tender was accepted at £118 for the building of a caretaker's cottage at the Waterworks, wrote withdrawing his tender, as he had since found that he could not build it for that amount. The question of re-advertising the contract was left over till the February meeting.

Dublin.—The Council of the Royal Victoria Eye and Ear Hospital invite tenders for the erection of a new out-patients' department at the rear of the new hospital buildings in Adelaide Road. Plans and specifications have been prepared by Messrs. Batchelor and Hicks, 86 Merrion Square, Dublin. Messrs. Patterson and Kempster, 95 Lower Leeson Street, are the quantity surveyors. Further particulars will be found in our advertising columns.

Mr. Thomas Manley Deane has been appointed architect for the building of a new Telephone Exchange at Wavetree, near Liverpool, for the National Telephone Co., and has just returned from inspecting the site. He is at present preparing the plans for same.

We hear from Messrs. McLaughlin and Harvey that their tender has been accepted for the building of the new College of Science in Merrion Street, of which Sir Aston Webb, R.A., and Mr. T. Manley Deane are joint architects. This will be one of the largest contracts that has been carried out in Dublin for a considerable time.

Mr. Henry J. Lundy, M.R.I.A.I., has removed his office from Dame Street, to 17 Suffolk Street.

The Irish Lights Board have entered into a contract for four Irish Light-keepers' dwellings at Skerries. The amount of contract is about £2,700. Mr. Herbert Henry, Drogheda, is the contractor.

The work in connection with the new Royal Hall has been laid. The Hall, it is estimated, will cost last issue, has been secured by Mr. C. J. Crampton, embraces the completion of the present block A, six loose boxes, two cow-houses, and space for ambulance on ground floor; overhead—pathology lecture room, two rooms for bacteriology, two for special research, one photographic room, one sterilising room, a serum and operating room, lavatory accommodation. Block D will consist of a lecture theatre, cloak room, lobby and porches, reading room, two

college offices. Heating arrangements on the ground floor. Overhead—Museum, boardroom, and ante-room.

In our advertising columns to-day the Dublin Port and Docks Board invite proposals for the supply of a variety of stores.

Kilkenny.—An advertisement appears in our columns this week for tenders for the building of a new Public Library.

Kingstown.—Owing to the leases falling in many of the houses in the township are undergoing repairs and renewals. Messrs. J. Plunkett, Bray, and Kingstown; Mr. Louis Monks, Kingstown; and Mr. F. Weaver, Kingstown, are carrying out the work at Brighton Terrace. Mr. Geo. Handy is renovating at Sandycove Terrace.

The award in the case of Messrs. Lynch and Egan and the Kingstown Urban District Council has been published by the arbitrators. It will be remembered that the claims were referred to Mr. Wm. Beckett and Mr. George Tickell, with Sir Thomas Drew acting as umpire. The contractor claimed compensation for delay in execution of work in building houses at Cross Avenue and Cumberland Street at over £4,000. A counter-claim was made by the Kingstown U.D.C. for £3,900 as penalties on account of delay and consequent loss of rent. The arbitrators found that £439 was due by the Council to the contractors.

Lisnaskea.—County Court Judge Craig, K.C., recently decided against the Lisnaskea Rural District Council in every one of nine appeals brought against their decisions with regard to proposed sites for labourers' cottages in the district. The Council adopted a resolution asking Mr. J. Jordan, M.P., to move to have inserted in the Labourers Acts a clause enabling District Councils to appeal to the judge of Assize against the decisions of the County Court Judge in such matters.

Monaghan.—Mr. Thomas F. McNamara, architect, and Mr. Gardiner, architectural adviser of the Lunacy Office, attended at the Monaghan and Cavan Lunatic Asylum during the week, and made a careful examination of the new buildings (which, by the way, have been erected at a cost of £10,000 by Messrs. Wm. Callaghan and Son, Lurgan). Possession has been handed over to the committee, and a final cheque for £550 was passed at their meeting.

We hear that the local contractor, whose tender had been accepted for the building of the new Post Office, has withdrawn his tender. It is stated that he has ascertained he could not build it for the amount he tendered, which was close on £3,000. It is not yet known whether the Board of Works will re-advertise or accept the tender next to the one above-mentioned.

There has just been erected in the churchyard at Corcaghan, some three miles from Monaghan, a very handsome Celtic cross, of chaste design, over the grave of the late Very Rev. Thomas Canon Murphy, P.P., Kilmore and Drumsnatt. The material used is limestone from the Drogheda quarries. The memorial is enclosed by a massive metal railing, set on a limestone plinth. The work was excellently turned out from the monumental works of Mr. John Delaney, J.P., North Road, Monaghan. Mr. Edward Stuart was responsible for the design and the carving.

Rathfarnham.—A petition was received by the Dublin County Council from the magistrates of the Rathfarnham district complaining of the bad and inadequate condition of the Courthouse at Rathfarnham. The petition asked the County Council to provide a more suitable Courthouse. Mr. Joseph Mooney, J.P., suggested that the County Surveyor be instructed to inquire into the possibility of procuring new premises for the holding of the Petty Sessions at Rathfarnham. Mr. McBride handed in a notice of motion to the effect that the County Council include in the estimates for the coming year money enough to build a new courthouse at Rathfarnham.

Waterford.—The new premises of the Y.M.C.A., at John Street, are rapidly approaching completion. The builder is Mr. Cullen, and the architect Mr. Lovell.

Westport.—Tenders have been received for the erection of mill and store buildings adjoining the Quay at Westport, in accordance with plans, which may be seen at the offices of Messrs. R. and H. Hall, Ltd., Westport.

The following Rural District Councils have applied to the Local Government Board to confirm improvements under the Labourers' Acts schemes made by them:—

Athy.—No. 2 Rural District scheme, at an estimated cost of £25,920. A local inquiry will be held on the 2nd day of December.

Ballina.—Rural District, estimated cost of £14,589 16s.

Boyle.—No. 1 Rural District scheme, at an estimated cost of £79,660. A local inquiry has been held.

Clogheen.—Rural District scheme, at an estimated cost of £18,560; and Mr. P. J. Hogan, Inspector of the Local

Government Board, held a local inquiry as to the propriety of confirming such scheme.

Cashel.—Estimated cost of £56,421.

Clogher.—Rural District, estimated cost of £10,540.

Cootehill.—No. 1 Rural District, estimated cost of £15,282.

Corrofin.—Rural District scheme, at an estimated cost of £22,800; and a local inquiry was held.

Ennis.—Rural District scheme, at an estimated cost of £53,405; and a local inquiry was held by Mr. J. J. Kelly, Local Government Inspector.

Inishowen.—Rural District, estimated cost of £19,620.

Kilbeggan.—Rural District, estimated cost of £7,330.

Kilrush.—Rural District scheme, at an estimated cost of £28,200. A local inquiry has been held.

Kells.—Rural District scheme, at an estimated cost of £72,347. John F. MacCabe, Esq., Inspector of the Local Government Board for Ireland, held a local inquiry.

Kinsale.—Rural District scheme, at an estimated cost of £37,200. Mr. M. J. Nolan, Inspector of the Local Government Board for Ireland, held a local inquiry.

Lurgan.—Rural District, estimated cost of £10,500.

Stranorlar.—Rural District, estimated cost of £23,049.

Tullamore.—Rural District, estimated cost of £45,000.

GRAVES' PATENT ROOFING.

Messrs. Graves and Co., Ltd., of Waterford, have sent us a copy of their new catalogue, which describes the various roofing specialities manufactured by them, and also directions for laying it. The catalogue is effectively printed, and well illustrated throughout. In the introductory portion of the pamphlet some account is given of the earlier history of Messrs. Graves' roofing material, from which it appears that they purchased the patent rights for the United Kingdom from the Danish patentees, and established works, which have since been largely increased, at New Ross, about thirty years ago.

The more important features of this form of roof covering are its durability. Buildings covered, it is stated, thirty years ago, are still as good as the first day; there is no annual tarring required; and it is not affected by extremes of temperature. However, more important than all, is its fire-resisting qualities. It is claimed that the material, when coated with Graves' Mastic Composition and sand, is absolutely fire-proof, and the account of various fire trials given in the catalogue is certainly conclusive on this point.

It is interesting at the present moment to remark that the whole of the flat roofs, and all the gutters (the latter amounting to some miles in length) in the Dublin Exhibition buildings were covered with Graves' patent roofing. It is now being used for all classes of large and permanent buildings, such, for instance, as railway stations, goods stores, locomotive sheds, dock sheds, warehouses, and cold-storage buildings.

One of the prominent features of the material is its almost complete immunity from damage by chemical fumes, which has led to its adoption by nearly all the chemical manufacturers in the United Kingdom, and many abroad.

Messrs. Graves and Co.'s stall at the recent Irish International Exhibition contained some most interesting samples of their material, cut from the roofs of the chemical works in Widnes and elsewhere, after ten, fifteen, and twenty years' exposure, which appeared to be as good as the first day. They also showed pieces of the material, with the charred remains attached, cut from the roofs of buildings which had been through conflagrations, showing that, although the boarding in some cases had been entirely destroyed, Graves' Patent Roofing was still intact. There were also samples of lattice girder and flat roofs; one of the latter had been filled with water at the top during the whole time the Exhibition was open, and the boarding underneath remained perfectly dry. It appears to be a first-rate material for flat roofs of all descriptions, being easily dealt with, and apparently not requiring a thick covering of sand or gravel.

For flat roofs, two layers of the material are used with Mastic Composition between and on top.

In addition to the original Graves' Patent Roofing, which, we understand, is made by hand in the same manner as the Danes made it, Messrs. Graves manufacture a cheaper machine-made roofing material, sold under the name of "Durateg," which appears to be very suitable for all roofs of a temporary nature, and for sarking under slates, etc., and which has met with a most favourable reception on the market.

The catalogue itself contains a large number of illustrations, with a full description of the various qualities of the roofing material and instructions for use.

GERMAN OPINION OF SAND-LIME BRICKS.

At the last annual convention of the German Brick-makers' Association a report was made by the committee which was appointed the year before for testing the difference between clay and sand-lime bricks. It was, of course, natural that the data and the meetings of this committee, and also the data gathered by it, should have been kept secret until such a time as the report was made. The sand-lime brick manufacturers, however, attacked the committee on this very point and threatened to expose the tests made before the publication of the report. This threat did not bother the committee much. The report was very comprehensive, and, while not all tests are completed, there is enough to show that sand-lime bricks should be used carefully in new buildings. The points which the committee examined and which the sand-lime brick manufacturers claim to their advantage are as follows:—

1. Fire-resisting qualities.
2. Greater strength than clay bricks.
3. More uniform size of the bricks.
4. Cheaper cost of manufacturing.

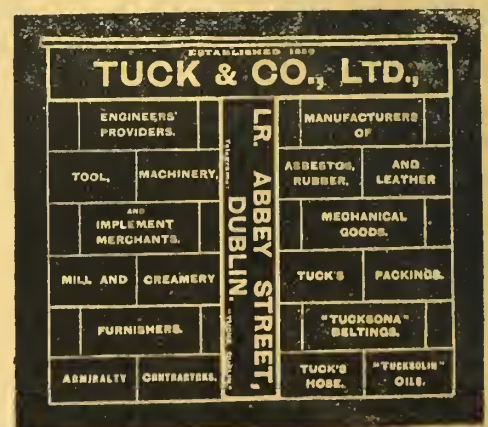
The points against sand-lime bricks, or rather the points which are in dispute, are:—

1. The fire-resisting qualities.
2. The killing of the mortar made from lime.
3. The absorption of plastering.
4. The greater strength which is necessary for sand-lime bricks.

It appears from the report that the fire-resisting qualities were made one of the main points of issue. The tests were made in a specially built test kiln, in which the best Berlin sand-lime bricks and also the best clay bricks from the Berlin market were tested side by side. The results were that the clay bricks showed straight cracks, and were partly vitrified, while the sand-lime bricks were crumbled to pieces for a distance of over two inches. The tested piers were laid up in cement mortar. This mortar could be taken off the sand-lime bricks without any force whatever, while it adhered tight to the clay bricks. The report states further that the opinion abroad that sand-lime bricks stand the fire better is not proven. It is further shown that sand-lime bricks after these fire tests did not stand up at all on the crushing test, and that all of them showed only 7 kilos per square centimetre, while the Berlin building ordinance requires at the lowest test 14 kilos per square centimetre.

In regard to the third question, as to the uniformity of size, it was stated that sand-lime brick people had that advantage, and the report wishes to impress the importance upon the clay brick manufacturers of being more careful in putting uniform bricks on the market. In regard to the fourth question, the cost of manufacturing sand-lime bricks has been given as between 12 and 22 shillings, and the average is about 17 shillings, which is about the same as the cost of manufacturing clay bricks. The report concludes by stating that the clay brick manufacturers have nothing to be afraid of from the sand-lime brick people. Clay bricks have stood the tests for ages, and sand-lime bricks will always be treated with suspicion. Some tests should be carried still further, and to that end the convention voted additional means to carry on the investigation. With the adoption of the report all secrecy of the investigation was abandoned, and the sand-lime brick people are now invited to disprove the clay manufacturers' arguments.—*The Clayworkers' Journal.*

County Court Judge Craig, at Enniskillen Quarter Sessions, held that, as a general rule, a labourer's cottage should not be built on the land of a farmer with whom the labourer for whom the cottage was intended was never employed.



ENGINEERING SECTION.

ITEMS.

The occasional visitor to London cannot fail to notice the enormous increase of the traffic during recent years and its changed character. Formerly, although the main thoroughfares in the city and West End were congested, the horse-drawn vehicles moved slowly, and the pedestrian was enabled to steer a course without much inconvenience. But the introduction of motor vehicles—first the lorries, next the omnibuses, and finally the taximeter cab, together with the numerous private conveyances—have caused grave inconvenience to the public, and, in spite of elaborate police arrangements, the traffic problem in London is now of such a serious nature as to demand instant attention from the authorities. At certain periods of the day the street crossings are practically impassable, nor do the drivers display that courtesy which might be expected. Indeed, were it not for the electric tubes, which encircle and traverse the metropolis, travelling in the city would be anything but a pleasure; even these modern conveniences have only relieved the congestion temporarily and to a minor degree. It is naturally easier to criticise the present condition of affairs than to suggest a remedy, but probably the first step taken will be to confine heavy traffic to the early hours of the morning and to circuitous routes, so that during the busiest part of the day the main thoroughfares will be left free for light horse and motor vehicles. This will, however, only increase the danger to pedestrians unless stringent measures are adopted to regulate speed and teach the drivers to respect the rights of those who travel on foot. As a well-managed city, at least with regard to the traffic, London does not improve, but the conditions are so abnormal that ordinary rules are useless, and the innate conservatism of the authorities tends to prevent the introduction of sweeping changes, however desirable and essential they may be.

* * * *

There is, at least, one matter upon which the Londoner may be congratulated, and which might, with much advantage, be studied by our own authorities. In spite of the enormous traffic the streets are kept splendidly, and, even during the most mud-forming drizzle, the army of street-cleaners preserve the road surfaces in a manner which is astonishing to those who dwell in less-favoured cities.

* * * *

Looking back over the few years of the twentieth century which have already sped, possibly the chief thought that will strike the engineer is that we are in the age of speed. Year by year, indeed month by month, fresh inventions are brought to public notice, all of which are introduced for time-saving purposes. In no section of our daily needs is this more apparent than in that of transport. By sea and by land the cry is for more speed, and every nerve is being stretched to fulfil the insistent demand. It seems but a short season since the *Lucania* was heralded as the last word in marine engineering, then came the German fliers, and lately the papers have been filled with the records of the *Lusitania*, which held the blue ribbon of the Atlantic for a few weeks, until the sister-ship, the *Mauretania*, established the record of 624 knots for one day's steaming. But however startling these facts may appear with regard to sea transport, it is on land that the chief changes have occurred. They take place so rapidly that one has not time to consider the possibilities of a new system before it becomes an accomplished fact. For many years the horse-drawn omnibus and tram alone were thought of, then came the electric tram, the electric railway, and motor-propelled vehicles for the road. And who dare say that we are even within sight of the final limitation of speed? It is occasionally argued that these modern inventions are not a blessing but a curse, and that men were happier in the good old days. Possibly there is a substratum of truth in the assertion, for hustle makes neither for peace of mind and the quiet contemplation which the latter brings in its train. Yet the great discoveries of the last century have brought mankind into fuller relationship, to a degree lessened the struggle for existence, and opened up a realm of knowledge unknown to our ancestors.

* * * *

For the worker in applied science one of the most fascinating problems is that of the electrification of railroads. We are now so used to the advantages of electrically-operated street cars that it is difficult to appreciate the strides that are being made in the conversion of the railroads from steam to electricity. In Great Britain alone there are over 5,000 miles of electrically-operated system,

with over 20,000 motor tramcars in use; indeed, the importance of electricity as a lighting agent has been almost, if not entirely, eclipsed by its growing use for motive power. The greatest venture was the conversion of the Metropolitan Underground Railway to electric traction, and we understand that the London, Brighton, and South-Coast Railway will shortly provide the electrical engineer with an object-lesson in the most modern methods of electrical equipment. In Ireland electric railways are not at all numerous, and yet, with such a number of small branch lines, it would be thought that this country afforded a wide field for their introduction. The steam-propelled vehicle still holds its sway, the lack of capital necessary for the electrification of the lines being the chief cause of our slow progression.

* * * *

The *Surveyor* describes a new pavement, of which a section has been experimentally laid in front of the Conservatoire des Arts, in the Rue St. Martin, Paris. It is not surprising to learn that the material of which it is formed is reinforced concrete, with steel framework and concrete filling. The metal part of the pavement consists of plates of perforated steel, with strong spikes or bolts of steel running through them between the perforations, resembling a steel harrow, except that the spikes project equally on each side, and are square and blunt at the ends. These metal sections are laid on a concrete base, after which a specially-prepared concrete, in a soft condition, is shovelled upon them and rammed down, making a solid mass level with the tips of the prongs of steel. The tips are so close together that the shoes of the horses and wheels of the vehicles will rest partly on them and partly on the concrete. The principle is, therefore, much the same as that adopted in many of the patent stairheads which are now on the market. It is claimed that this new pavement will be more durable than asphalt, wood block, or any other material in use at the present time. As the concrete may be expected to wear faster than the steel, sufficient roughness will be obtained to form a proper foothold for horses, without interfering to any appreciable extent with the tractive resistance of the surface. The cost of this new pavement is not stated, but it will undoubtedly be high, and unless its durability extends over a long period, it would, perhaps, be prohibitive.

* * * *

The paper recently read by Mr. J. S. E. de Vesian, M.Inst.C.E., before the Civil and Mechanical Engineers, on "Ferro-Concrete," was of such an interesting and instructive character that a few of the most important items of information will prove useful to our readers for reference, and it is to be regretted that claims on our space prevent the publication of the paper in full. Defining ferro-concrete, the author stated that it is a new material in which the steel takes the tension stresses and the concrete the compression. If a beam of concrete alone will extend, say, one-tenth of an inch under tension, a similar beam reinforced properly with steel will extend one inch, i.e., ten times as much, without showing signs of failure. The more the steel can be sub-divided throughout the tension area the better; for instance, small round bars are preferable to rolled sections of considerable area. Proceeding to describe the materials, the quality of which is of the highest importance, Mr. de Vesian explained that most experts now agree that the most suitable mild steel is that produced by the basic open-hearth process, with a tensile strength of from twenty-eight to thirty-two tons per square inch, and an elongation of twenty per cent. in a length of eight inches. High carbon steel is unsuitable, as is also any metal of variable quality, such as some kinds of Bessemer steel. It is immaterial what form the steel takes, but, of course, the most economical form, and the easiest to arrange, is the round bar.

* * * *

The quality of the *Portland cement* used requires careful supervision. It should be of the finest grinding, giving not more than a twenty per cent. residue on a 180 by 180 mesh sieve. In itself the fineness of grinding after calcination is not a very conclusive test. It would be better to have evidence of a very intimate mixing of the chalk and clay before calcination, but such a test would be very difficult to supervise, and in practice the best one can do is to see that the cement is delivered to the requisite fineness. The permissible expansion specified by the author under the Le Chatelier test is only *half* that allowed by the new British standard specification—viz., six mm. and three mm. fresh, or seven days old. The time of setting should be from fifty to ninety minutes initial, and from seven to

nine hours final. Test blocks, of four-inch cube, are required to stand the compressive stress of 600 lbs. per square inch at the age of twenty-eight days.

* * * *

The sand to be used should be sharp and coarse, of all sizes from one-eighth inch downwards, and be carefully washed free from all traces of chalk, lime, clay, or earthy matter. Sand of even grain, like "standard" sand, is undesirable.

* * * *

The aggregate for the concrete should consist of the hardest local stone obtainable, other than limestone, which is not admissible owing to its disintegration under heat. Brick cinder, coke breeze, or slag concretes should be avoided, as the resulting concretes are porous, and often corrosive owing to sulphates and similar impurities. In the choice of a stone, rounded shingle or gravel of hard stone is preferable to broken stones, as so many stones have a flaky cleavage. The aggregate should be of all sizes from three-quarter inch down to one-eighth inch, and must be free of all earthy matter.

* * * *

The proportions of the materials necessarily vary with the character of the work to be executed. The voids in the sand should be ascertained by filling a receptacle with perfectly dry sand, and measuring the amount of water that can be added without causing an overflow; the percentage of voids in the aggregate can be similarly calculated. The calculation of this percentage is necessary owing to its variation with different classes of material. The average mixture adopted in ferro-concrete construction is as follows:—

Portland cement	...	...	6 cwt.
Sharp sand	...	...	13½ cub. feet.
Washed gravel	...	...	27 cub. feet.

These quantities, when properly rammed, yield about thirty-one cubic feet of concrete. The proper mixing of the concrete is of the highest importance, and as good concrete may be improved 100 per cent. in strength by thorough mixing, it is preferable to employ a good machine than to attempt the work by hand. The concrete mixture should be just plastic, and should always be well rammed.

* * * *

The author next proceeded to deal with the vexed question of calculation. Up to a certain point the calculations necessary for the design of ferro-concrete are the same as those employed in the case of all other structural materials. When the forces have been determined for all the members of a particular structure, the cross section of the concrete may be made sufficient to resist the compression stresses with or without the help of steel as reinforcement, and a proper proportion of steel added in tension areas. The shearing forces are provided for by placing auxiliary reinforcement in such a manner as to relieve the concrete from forces tending to rupture it in vertical, horizontal, or diagonal directions, and to form a link between the compression and tension portions of the construction. It is very easy to settle the cross sectional area of concrete for resisting compression in any member, but when steel is added, for either compression or tension, difficulties and complications at once arise from the fact that the modulus of elasticity of the concrete is variable. The modulus of elasticity is fairly constant for the steel, but for the concrete it may vary from 500,000 lbs. per square inch to 4,000,000 lbs. per square inch, according to the quality of the cement, sand, and aggregate, the proportions of the mixture and water, and the manner in which it is dealt with by the workmen. The trouble is further increased by the fact that the modulus of elasticity of concrete varies with the stress to which it is subjected and with the age of the material, so that there are, at least, six different causes which may affect it. To use the words of an American author, Mr. A. W. Buel, concerning the numerous theories in existence, "while some of these theories are deduced from a few experiments, others are entirely theoretical, and none are fully demonstrated to be absolutely true." The allowable stresses usually adopted by Mr. de Vesian are:—

Steel in tension and compression, 14,000 lbs. per square inch to 17,000 lbs. per square inch.

Concrete in tension, nil.

Concrete in compression, 340 lbs. per square inch to 400 lbs. per square inch.

Concrete in shear, nil.

Adhesion of concrete to steel, nil.

The above stresses are far more conservative than those recommended by most authorities, but bearing in mind the various causes which may operate in actual construction to reduce the theoretical resistance of ferro-concrete, any increase is undesirable.

The author concluded his paper by giving figures indi-

cating the economy of ferro-concrete construction, and with descriptions of a few of the systems in use in the Kingdom.

The data which we have given above, while still in some measure theoretical, are amongst the clearest we have yet seen, and are sufficient to enable the engineer to design in the new material with a degree of confidence which, until recently, has often been sadly lacking.

* * * *

Architects and engineers often writhe ineffectually under the regulations of building Acts and their interpretation by municipal officials, but a case which recently came under the writer's notice in London is one of the most glaring cases of officialdom yet within his knowledge, and is worth quoting as a cause for the slump in the building trade. A merchant was desirous of extending a shed in his yard. The shed was a light structure, with an open slated roof, and was used as a store. The extension is about twenty-four feet long by eight feet wide, and is to be covered with a lean to roof, the height of the wall at gutter level being only five feet nine inches. For this addition brick walls of *fourteen inches thick* had to be built at side and both ends, although the longest wall was to be erected against an existing wall nine inches thick. There is, therefore, some twenty-three inches of brickwork in a wall less than six feet high to sustain a light corrugated iron roof. However, the owner, recognising the futility of fighting bye-laws, proceeded with this needless expenditure, and had built the walls to a height of about three feet when the district surveyor discovered the footings were only *two feet six inches wide*, in lieu of the three feet shown on the drawings. One would think these footings capable of sustaining such a building even on a marsh, let alone on a good gravel subsoil; but no, the end walls eight feet long had to come down and the footings extended to the full width, the surveyor, however, magnanimously allowing the longer wall to stand. It is difficult to discover whether the regulations or the surveyor himself should bear the responsibility for this policy, but as an object-lesson of what has to be contended with in these days of local control, this instance must surely be hard to beat.



MR. EDISON'S CONCRETE HOUSES.

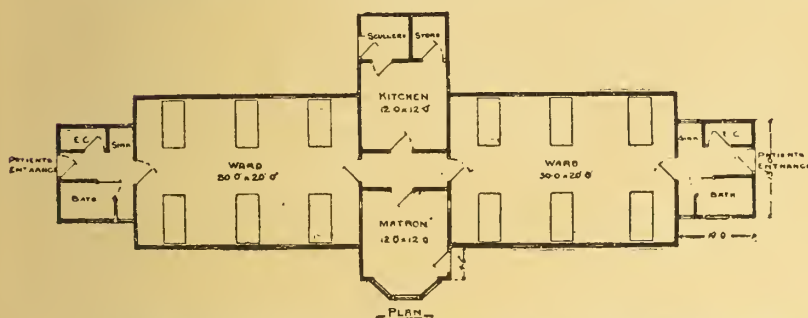
The Times publishes a letter written by Mr. T. A. Edison to a correspondent, in the course of which the inventor, referring to his scheme for concrete houses, says: "I now have a model, one-fourth the size of the house, designed by the New York architects. This winter I shall construct the iron moulds and devise machinery whereby a full-sized house can be cast in twelve hours after the moulds are in position. At the end of six days the iron moulds are removed, and the house will be complete, including stairs, partitions, mantels, bath, etc., and after drying six days will probably be ready for occupancy. To build this house for 1,000 dollars (£200) it is essential that it be erected on sandy soils, as the material excavated for the cellar is all that is required to build the house, except, of course, the cement. The cost of the iron moulds will be about 25,000 dollars (£5,000), and the cost of the other machinery about 15,000 dollars (£3,000). From this outfit an unlimited number of houses can be erected. It is probable that companies will be formed, who will have several moulds, each of a different design, and will go actively into business. I have not gone into this with the idea of making money from it, and will be glad to license reputable parties to make moulds and erect houses without any payments on account of patents, the only restriction being that the designs of the houses be satisfactory to me, and that they shall use good material."

Mr. George V. Rhines, writing to the American Engineering News, says in reference to Mr. Thomas A. Edison's achievement in designing concrete dwellings:—"I am struck with admiration at the off-hand way in which a great mind brushes aside the many perplexities that trouble the ordinary designer of concrete buildings. The casting of plumbing fixtures and plumbing pipes in place is certainly a startling idea; but if this can be accomplished, why not carry the idea further, and have the necessary furniture cast in place? dishes may be cast on the dining-room table, and arranged with flushing rims and wastes, like the plumbing fixtures, so that the trouble of dish washing may be done away with for ever. When thinking along this line one's ideas expand so rapidly as to cause hesitation in presenting them, but it seems to the writer that if the householder's sensibilities are so blunted as to make him willing to occupy a cement dwelling which is precisely like thirty-thousand others, presumably in the same town, he would almost be ready to consider cement napkins and cement bedding."

ESTABLISHED 1834.

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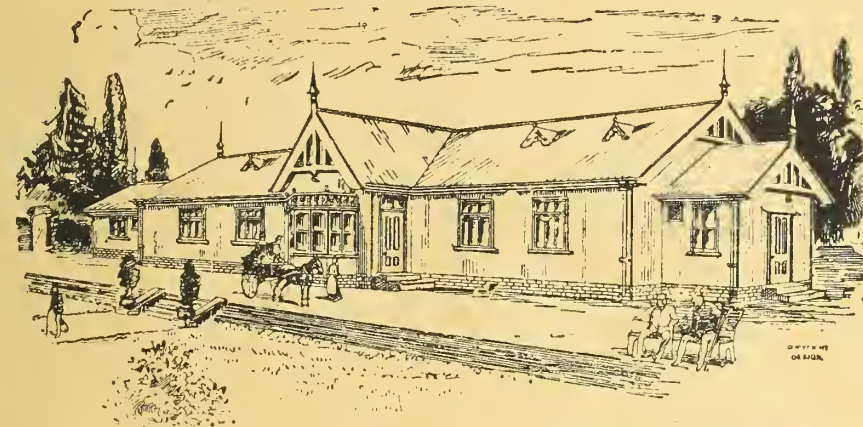
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Hanley Castle.
Hants Reformat'y
Harington.
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Hawarden.
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Hereford.
Hertford.
Hexham.
Hitchin.

Homerton.
Houghton-le-
Hull. [Spring].
Hungerford.
Hythe.
Ilkley.
Ipswich.
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Kidderminster.
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King's Norton.
Leeds.
Leicester.
Leigh (Essex).
Leigh (Man-
chester).
Leighton Buzzard.
Lewes.
Leyton.
Liversedge and
Mirfield.

Liverpool.
Llandaff.
Llandrindod Wells.
London.
Lowestoft.
Ludlow.
Luton.
Macclesfield.
Maidenhead.
Maidstone.
Malvern Link.
Manchester.
Mansfield.
Manston.
Market Harboro'.
Melton Mowbray.
Redcar.
Metropolitan
Asylums Board.
Motherwell.
Newport.
New Quay.
New Romney.
Northfleet.
Northleach.

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Orsett.
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Stapleton.
Stockton.
Stockwell.
Stone.
Stowmarket.
South Stoneham.
St. Albans.
St. Mellons.
Strood.
Stratford-on-Avon.
Sulina (Black Sea)
Swansea.
Tadcaster.
Taunton.
Tenby.
Thingoe.
Tonbridge.
Tottenham.
Tunbridge Wells.
Treviso (Italy).
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Uppingham.
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LAND TREATMENT OF SEWAGE.*

For the past half-dozen years we have become so accustomed to the discussion of the question of sewage disposal, coincidentally with the consideration of bacteriological treatment and results, with occasionally still some form of chemical treatment, that we have almost forgotten that such things as "sewage farms" still exist, and that there are still engineers and chemists who look upon what is called in the present work, "the land treatment of sewage" as the most desirable and practical system. If for no other reason than this, the issue of this present work is interesting, because it reminds us of the theories so strongly held twenty or thirty years ago, and also because it sounds a note of warning to us, not to pin our faith too closely, not to be too vehement and dogmatic in respect of the treatments at present considered almost the perfection of treatment, for we may, and probably shall, live to see them superseded by some process or another, vastly simpler. Engineers interested in sewage disposal will recall the descriptions of sewage farms, and irrigation grounds, and the various forms of land filtration described in those admirable and practical works on sanitary engineering, by the late, Baldwin Latham and Bailey Denton, and how dogmatically the engineers of twenty or thirty years ago declared the whole question of sewage disposal solved. Some little experience soon proved that it was not so; improvements were made; land irrigation contended with chemical precipitation, and combinations of chemical precipitation with aeration, which was really bacterial action. The fine theories of the financial soundness of sewage farming were, in vast numbers of cases, found to be fallacies—the sewage sludge difficult to get rid of, the farms very often nuisances, and the upkeep excessive in cost. On the other hand, in favourable localities, with cheap land, suitable filtrate soil, and other conducive conditions, much good work was done. But innumerable failures gave land filtration a bad name, whether it was "intermittent downward filtration" or "broad surface irrigation," as these varieties were then called.

The important part played by bacteriological action, even in such systems, was but very imperfectly understood. Then came the bacteriological experiments of Mr. Dibdin and others, with the somewhat extravagant claims of the annihilation of the sludge difficulty, and, still later, the Exeter experiments. At first slowly, but subsequently by leaps and bounds, bacteriological treatment, in so-called septic tanks, with or without subsequent irrigation, of a purely liquid and filtered effluent, over land gradually ousted not only the land treatment, but also the chemical precipitation systems.

With this state of things existent, the opinions, not alone of engineers, but of the public, changed, until now it is rare to find any system of sewage treatment proposed that does not include, as its chief feature, bacterial disintegration, and probably also bacterial filtration. In addition, it is now known that even irrigation over land must be largely bacterial in its operation. More recently we have had Mr. Dibdin's new slate-bed theory, which, if it does all claimed for it, must almost revolutionise the earlier systems.

It is, therefore, a long time since anyone has written upon sewage farming or land treatment pure and simple. The volume before us is, therefore, valuable; it does not set up any theories at, it is simply a digest of, reports made to the Royal Commission on Sewage Disposal, by specially appointed officers, together with a detailed description of several town sewage farms, all more or less successful. The first of these, Aldershot Camp, may be taken as, perhaps, amongst the most favourable, but none lead to the belief that any system of purely land filtration offers any attraction or advantage, and, in many cases, bacterial methods, in the shape of tanks or filters, have been brought in to supplement and aid the land treatment works. This is so at Croydon, once regarded as a model of up-to-date sewage farming, at South Norwood, and elsewhere. Leicester, on the contrary, having spent so much money already, has recently developed on the old lines, successfully so far (by increasing the area of land). Aldershot, which we have referred to as a favourable example, is one of the few really successful sewage farms in the country. It was fully treated of in a work by Colonel Jones and Mr. H. A. Roeb-

ling, published in 1902, and then reviewed by us at some length. There is, we are told, no objectionable smell noticeable (except in carting the sludge), but great difficulty was experienced in getting labour to work the farm. What the annual cost of maintenance is, is not stated. No changes have been made of late in the method of working, or in the area of the farm, which dates from 1865, but the water supply per head of the population, originally 43 gallons per diem, has been reduced to 25 gallons per head. The area is 138½ acres, while the population is but 7,000. The sewage is described as being "exceptionally strong," though why this should be so, in the case of a purely domestic sewage, is not explained. None of the samples of sewage taken after treatment were, of course, fit for discharge into a drinking water stream.

One of the facts which, in addition to the advance in the study of bacteriology, and knowledge of the work of micro-organisms in breaking up and purifying sewage, is the enormous quantities of land demanded by the older system. 138½ acres for the purification of the sewage of a small town of 7,000 inhabitants, would in Ireland, for instance, with its "land hunger," be absolutely impossible. Talk of "cattle drives," why the angry, landless ones would dam back the inflowing sewage in a week, and "stripe up" the farm. On the other hand, bacterial treatment—whatever modifications may have occurred—tends towards simplicity of working and economy of land.

The author of this digest is very modest—his individual opinions are only expressed in a brief paragraph at the conclusion of the work, in which he states the facts very fairly. He mentions that circumstances must govern the case; for instance, the destination of the effluent is a very important factor, and that the treatment of the sewage is a mere matter of money—the rival claims of sewage farms, bacterial installations, and "possibly" chemical methods, the price of land, cost of material for bacteria beds; and at this stage, he adds, it is that extensive acquaintance with the details of the subject assists the engineer, no advocate of any particular system being really in a position to judge dispassionately of other systems. The results of some engineer's system may be eminently satisfactory from a purification standpoint, but might not reasonably satisfactory results have been attained by some other system at much less cost?

The author concludes with a little "tilt" at the L.G.B. as regards the area of land demanded for purification, for everything depends upon character of the land, and he quotes Mr. Bidder, who is reputed to have asked: Would the L.G.B. treat an acre of ducks' backs exactly like an acre of road metalling or porous gravel?

The only really positive assertion the author makes in favour of land purification is almost in his last word, when he declares "that it may be said, without fear of contradiction, that when the soil is suitable, the flow not over-much, and the management competent, a sewage farm can produce excellent results. To these requirements may be added cheap and plentiful land and labour."

The work consists of a reprint of a series of articles in the *Surveyor and Municipal and County Engineer*. In the preface it is stated that the articles were based largely upon the reports to the Royal Commission on Sewage Disposal of 1898 made by the officers specially appointed; but as the investigations, the results of which are included in these reports, were concluded some time ago, the author visited the farms in question (with the exception of that at Leicester), in order to ascertain what alterations had been made, or were proposed to be made, since the inspection by the officers of the Commission. The value to those vitally interested in the subject of sewage disposal of Mr. Scoble's condensation of the material to be found in the 800 pages of the Commission's four reports can scarcely be over-estimated. There are few who have either the time or the inclination to wade through and to digest the contents of voluminous blue-books, more especially in a case such as this, where the particulars detailed are by no means uniformly set out. A desideratum for some time past has been the presentation of a view of the whole question of the land treatment of sewage which should be free from either favour or prejudice, and this is precisely what Mr. Scoble has given in his book.

It is stated that, with surface irrigation of crude sewage, the sewage of fifty to one hundred persons requires a statute acre. This requirement is reduced to one acre per 100 to 500 persons in the case of mechanically-settled sewage; 300 to 1,000 persons in the case of sewage after previous bacterial treatment.

In this connection may be quoted the remarks regarding South Norwood observations, that—"The results, judged as a whole, do not lend colour to the belief that land of the kind available at the South Norwood sewage farm could be worked in practice so as uniformly to yield a really good effluent. But as so many of the final and general effluents

* "Land Treatment of Sewage." A digest of the reports made to the Royal Commission on Sewage Disposal by their specially appointed officers. Price 3s. net. By Herbert L. Scoble, Professional Associate of the Surveyor Institution, Member of the Royal Sanitary Institute, Fellow of the Royal Meteorological Society. Reprinted from "The Surveyor and Municipal and County Engineer," London: St. Bride's Press, Ltd., at Bride's House, 24 Bride Lane, Fleet Street, E.C. 4, 1907.

either passed or came within measurable distance of passing the standards suggested, it may be added that, if an additional area of land could be acquired so as to reduce the existing dose of sewage per acre of land, a majority of the resulting effluents would, doubtless, be found to be fairly satisfactory."

Arising out of this, the following table is given:—

BACTERIOLOGICAL ANALYSES (TOTAL NUMBER OF BACTERIA PER C.C.)

	Sewage (4 samples.)	Effluent* (9 samples.)	Stream (1 sample.)
(1) Gelatine at 29 deg. C. -	48,600,000	778,322 { 98 per cent. reduction. }	7,900
(2) Agar at 37 deg. C. -	6,357,500	35,157 { 99 per cent. reduction. }	1,100
3. B. Coli or closely allied forms (say at least) }	100,000	470 { Varied from at least 10 to 1,000 not 10,000 }	100 not 1,000
(4) B. Enteriditis sporogenes (spores—say at least) }	500	47 { Varied from at least 1 but less than 10 to at least 100, but less than 1,000. }	None in 1 c. c.

* Satisfactory (1) 3, (2) 4, (3) 5 and (4) 3 out of 9 effluents in each case.

ENGINEERING NEWS.

Callan.—Callan and Fethard townships will be lighted with electricity shortly. In both places the work of putting up the wires and perfecting the generating stations is progressing rapidly.

Coleraine.—At a special meeting of Coleraine Urban Council, the Council had under consideration the action of the Treasury in withholding the promised grant towards the carrying out of the Magilligan Pier scheme. The Chairman said it would be within the memory of the Council that a meeting was held to consider this matter, which was attended by the Chief Secretary for Ireland and a large number of the members of the Council. The whole scheme was considered without the introduction of politics, all classes joining in heartily in order to assist the people. They were received on that occasion by Mr. Bryce, the late Chief Secretary for Ireland, and they were all aware of what his opinion was, the recommendation he gave, and the settlement of that recommendation under certain conditions. A certain sum was to be guaranteed by the committee, and on those conditions the Government was to advance the sum of £5,000 for the carrying out of the work. Mr. Irwin, along with the committee, went round, and a very generous response was made to their appeal, with the result that the sum required was entirely collected. Then there were other conditions in which the railway company were concerned. He (Mr. Kennedy), along with Mr. Irwin and several other members, visited Belfast, and after some little difficulty they were pleased to say the railway company expressed themselves willing to fall in with the scheme, and do their share. There was nothing left but the Government to make the grant, and, to say the least of it, all the people who knew anything about the scheme were surprised to see a new Chief Secretary coming in and undoing what his former colleague had promised to do. They knew the class of people who were in Donegal, and they all knew that the Government could not have refused the same class of people in the South of Ireland. (A voice—"Question.") He proposed the following resolution:—"That this Council deplores the action of His Majesty's Treasury in withholding, without any given reason, the proposed grant of £5,000 to the marine works at Magilligan Point, the scheme having had the generous sympathy of three successive Chief Secretaries for Ireland. This meeting strongly urges the importance of the scheme for connecting counties Donegal and Londonderry by means of a steam ferry between Magilligan and Moville, and trusts that the Lords Commissioners of His Majesty's Treasury will carry out the recommendations of the present Irish Government at the earliest possible date." Mr. W. F. Anderson, vice-chairman of the Council, briefly seconded the adoption of the resolution. Mr. Lecky supported the adoption of the resolution. The Government, he thought, had been very much abused, and he did not think the Chief Secretary was to blame for what had happened. The people of Magilligan were leaving all the blame on the Government and the Chief Secretary for Ireland. Every person knew that if they could do anything they would do it, and it was very hard that they should be

held up to the public as being against it. After further discussion, the resolution was unanimously passed.

Lisburn.—This important scheme, entered upon a couple of years ago, has been brought to a successful completion, and the works were formally opened by Mr. G. B. Wilkins, chairman of the Urban Council. The site of the filter beds and sewage farm is a piece of land, about twenty acres in extent, close to Hilden Mills. It has been long known in the locality as New Holland. There are fourteen miles of sewers in connection with the scheme, the largest of which measures thirty and the smallest nine inches in diameter. The whole system is fitted with automatic flushing pipes, and these constitute a distinct feature of the works, having been introduced with the most satisfactory results elsewhere. The two outfalls, one on each side of the Lagan Canal, are joined together by a cast-iron syphon, consisting of two twenty one inch iron pipes, that pass under the river Lagan, the mill-race, and the canal. A thirty-inch outfall goes direct down to the works, and enters two detritus tanks provided with storm overflow weirs. By this means all sewage material over six times the dry weather flow passes into three storm water filters. The ordinary sewage then enters the four settling tanks, which decompose the solid matter. The affluent afterwards goes into the feed channel, from which it is distributed by automatic syphons into ten contact beds, made of large and small stones and washed clinkers. Each of these beds has a capacity of four hundred and eighty cubic yards, and the period of discharge has been fixed at two hours. The matter finally passes into twelve acres of land irrigated by "grips." The total cost of the work is estimated at close upon £40,000. The plans were arranged by Mr. G. Midgley Taylor, M.Inst.C.E., F.C.I., F.R.S.I., London, and the work was carried out, under his supervision, by Messrs. Firth and Co., York. Mr. Herbert Wragg superintended the scheme on behalf of the contractors. Mr. J. H. E. Griffith, C.E., was the resident engineer.

Limerick.—Limerick Electrical Engineership.—At a meeting of the Limerick Corporation a communication from Mr. Ambrose Hall, J.P., addressed to the Mayor and a number of Aldermen and Councillors, was read, in which he gave notice that he would hold them responsible for their action in voting or the appointment of Mr. McNamara as "Manager and Superintendent of the Electric Lighting and Power Works" of the Corporation, and would hold each of them "personally liable for such illegal and corrupt voting, and any inconvenience and loss that may occur resulting from such votes." The Mayor repudiated the term "corrupt voting," and several other members warmly resented the observation applied in Mr. Hall's letter. Mr. Cuddihy moved that he be asked to withdraw the words "corrupt voting." The Mayor said Mr. Hall should be called on either to withdraw the expression or to prove it. Ald. McNeece proposed an amendment that no notice be taken of the matter, and that the letter be marked "read." The voting was equal, and the Mayor gave his casting vote in favour of Mr. Cuddihy's resolution, which was declared carried.

Londonderry.—An inquiry has been held in Londonderry by Mr. Price, M.Inst.C.E., Local Government Inspector, regarding the proposal of the Corporation to borrow over £1,000 for the purchase of a steam motor engine capable of pumping 400 gallons of water a minute and of carrying nine men to a fire.

Longford.—In our advertising columns to-day the Longford Urban Council invite tenders for works in connection with the existing waterworks.

The Stillorgan Sewerage.—The Rathdown No. 1 Rural District Council are applying for a provisional order for acquiring lands in connection with the proposed system of sewerage for the Stillorgan district, embracing Stillorgan Grove, Stillorgan, Galloping Green, Newtown Park, Kill-o'-the-Grange, etc. Mr. P. H. McCarthy, B.E., is the engineer for the scheme.

TENDERS.

Dalkey sewer, S. R. Going, C.E., Town Surveyor. Tenders delivered 13th November, 1907:—H. Pemberton, Dublin, £99; James Fitzgerald, Dublin, £98; Henry Byrne, Dalkey, £80; Geo. Dixon, Kingstown, £72; D. Doyle, Dalkey, £68 10s. (accepted).

The Newry No. 1 (County Down) Rural District Council have under consideration the bill of costs of their solicitor (Mr. A. Gartlan) in connection with their first scheme for the erection of twelve cottages under the Labourers Act. The bill works out at the rate of about £10 per cottage.

CORRESPONDENCE.

Regulations for the Casting of Brass—Letter from the Treasury.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—I enclose a print of a notice which is being sent out by Mr. Wills, the Commissioner appointed to hear evidence with respect to certain draft regulations proposed by the Home Office, and objected to by certain employers, relating to the precautions necessary for the health of the workpeople to be observed in brass foundries.

You might possibly feel desirous of making some use of this communication in your paper.—I am, sir, your obedient servant,

A. T. HARE.

Treasury Solicitor's Department, Law Courts Branch,
276, Royal Courts of Justice, London, W.C.,
20th November, 1907.

Last June the Secretary of State certified the process of casting brass or any alloy of copper with zinc to be "dangerous." Draft regulations were issued, and objections thereto, on the part of manufacturers, have been made. The Secretary of State for the Home Department has, as set forth in the letter of Mr. A. T. Hare, Treasury Solicitor, addressed to us, appointed Mr. William Wills a Commissioner to hold an enquiry to examine into these regulations. The following are the chief particulars contained in the print referred to:—

1. An inquiry under Sections 80 and 81 of the above-mentioned Act with regard to the said draft regulations will be opened by me at the Council Chamber, Municipal Buildings, Birmingham, on Monday, the 16th December, 1907, at half-past ten in the forenoon, at which time and place the Chief Inspector of Factories and any objector and any other person who, in my opinion, is affected by the draft regulations, may appear either in person or by counsel, solicitor, or agent. The inquiry will be continued from day to day, or otherwise at such place or places as I may appoint.

2. For the convenience of objectors, prints will be made of all the objections received to the said draft regulations, and will be sold to any objector at the price of 2s. 6d. per copy, unless before the 25th of November instant notice is received by the Treasury Solicitor, Law Courts Branch, No. 276, Royal Courts of Justice, London, W.C., that any objector desires his objection to be treated as confidential, in which case such objection will not be disclosed. This course will enable objectors, whose objections are practically identical, to appear by one representative, should they desire to do so, with a view to shorten the inquiry.

These copies will be obtainable on application to the Treasury Solicitor at the address given above.

3. It is desirable that all objectors who wish to be heard at the inquiry should be present or be represented at the opening, but it will not be necessary on the first day for them to have any witnesses in attendance.

We take it that these regulations will apply to Ireland, therefore Irish brass manufacturers will be well advised in making themselves acquainted with the nature and extent of the proposed changes, and their effect upon trade considered.

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No. 25—Vol. XLIX.

HEAD OFFICE

December 14, 1907.

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TOPICAL TOUCHES.

The Kingstown Council has awarded a prize of £100 to Mr. G. H. Jacques, London, for the best plans for artisans' dwellings.

* * * *

On Tuesday evening last Mr. Frederick Batchelor read a paper before the Architectural Association of Ireland, entitled "The Architects' Dilemma."

* * * *

Mr. T. J. Mellon, one of the chief surveyors of the Board of Works in Ireland, has been elected a Fellow of the Royal Institute of British Architects.

* * * *

The will of the late Mr. Charles E. Martin, D.L., of 29 Sir John Rogerson's Quay, Fitzwilliam Place, and North Wall, has been proved at £341,121, of which £138,308 is in England. Mr. Martin made a large number of bequests, his fortune being divided amongst his own relatives—nephews and nieces. Mr. Martin had no children.

* * * *

On the 19th, both the Royal Institute of Architects and the Institute of Electrical Engineers in Ireland will hold their annual dinners. It seems rather a pity that such bodies as these did not try to arrange that their hospitable and social entertainments should not clash, because some people have been favoured with invitations to both dinners.

* * * *

Mr. W. J. Locke has resigned the secretaryship of the Institute, a step, unfortunately, almost inevitable; for Mr. Locke, after some years of moderate success as a playwright, has lately jumped into the very forefront of the ranks of English dramatists, his recent plays being amongst the successes of the season—"The Morals of Marcus," and the play produced by Mr. Beerbohm Tree recently in Dublin, being the two most notable. The drama's gain is the Institute's loss, for it will not be very easy to replace Mr. Locke.

* * * *

Great want of employment, and consequent acute distress, continues to prevail in Dublin, and tradesmen and labourers have been most seriously affected for a long time past, and with very little prospect of an improved state of affairs. A public meeting was held on Tuesday last in the Mansion House, for the purpose of considering the situation and securing subscriptions. In this connection, we notice that under the will of the late Mrs. Ada Lewis-Hill, the poor of Dublin will benefit by a bequest of £10,000 to the Lord Mayor in trust for the poor of the city, and the fund is now available for distribution amongst the trustees of the various cities benefited.

* * * *

The English judges hold that they have the right to frame the scheme, while the Lord Mayor prefers it should, so far as concerns Dublin, be framed by the judges of the Court of Chancery in Ireland—an obviously proper view. We trust that a substantial portion of this important sum may be expended in some really beneficial public works. For instance, we see no reason why something should not be done to remedy the deplorable state of some of the Dublin roads.

The authorities of Enniscorthy Asylum require a large quantity of sanitary fittings, baths, basins, w.c.'s, piping, etc.

* * * *

Arising out of a recent work by Mr. T. Seton Jevons, B.A., B.L., on "The Law of Trade Unions," we elsewhere offer some observations.

* * * *

On last Wednesday week, Mr. Lilly read a most excellent paper on "The Quebec Bridge Disaster" before the Institution of Civil Engineers of Ireland.

* * * *

In this issue we review a capital work lately brought out by Mr. Batsford, and entitled "English Shop Fronts—Old and New," which comes most opportunely. It is a subject upon which there has been much controversy, and the present work is bound to be very helpful to the student and the designer.

* * * *

Apropos of S. Paul's, Mr. Mervyn Macartney, the Cathedral surveyor, says: "The portico of S. Paul's has followed the direction of the towers, and has moved westwards." Says a humorous contemporary: "S. Paul's evidently wants to be in the fashion. When it reaches Park Lane we may hear the choir, without troubling to go into the city." Pity the Hibernian Academy couldn't move southwards in Dublin!

* * * *

The same contemporary asks why should not a certain gentleman, whose father failed to make a fortune out of Portland cement, be a "runner-up" in the Druce case.

* * * *

At the last meeting of the Royal Institute of British Architects, in London, it had before it the proposed revision of the charter of that body. Certain amendments which had previously been carried were formally incorporated in the new draft charter.

* * * *

The admission of candidates for fellows, without examination, is to remain in force until after the passing of the charter, while the proposal that associates should be given the same voting powers as fellows was negatived—on what topical grounds it is not very easy to say. The inclusion of the objectionable class to be known as "licentiates" was confirmed. This latter proposal is, to our mind, distinctively retrogressive, taking from the status of both fellows and associates, and distinctly unfair to the latter. The public will inevitably regard a "licentiate" as higher in status and qualification than an "associate," and the creation of the class will, if we mistake not, attract exactly the wrong class of men. There are, we freely admit, in all probability, a large number of *bona fide* architects who are not at present eligible for fellowships, and who are not prepared to sit for examinations, but their case should be met in some other fashion. However, the great body of the members are undoubtedly with the Council in the course they have laid down, and we hope that the very best results may be attained—the best in the interest of the art of architecture, rather than the interests of individuals or a class.

* * * *

A correspondent tells us an amusing experience he had the other day at the terminus of one of the main railway systems in Dublin—which shall, however, be

nameless. Our correspondent had occasion to go to the country for the purpose of testing certain soil pipes and other sanitary fittings, and for that purpose brought with him a smoke-testing machine. Arrived at the station, the fearsome-looking machine was about being conveyed on to the platform, when the ticket checker at the barrier, with commendable vigilance, and bearing in mind the somewhat disturbed state of parts of the country through which that company's system runs, promptly stopped the venturesome sanitarian, and, despite all protest, ordered the machine to be forthwith removed off the company's premises, pending investigation. Subsequent angry recrimination resulted in the Station Master being sent for, and a careful but somewhat sceptical examination made of this new danger to law and order. Not until the owner had given an effective and popular demonstration of the harmless nature of the smoke machine, and of its powerlessness to endanger the lives and limbs of the passengers, or the safety of the rolling stock and premises, was it permitted to be brought in; but as the porter, upon whom ultimately devolved the duty of conveying it from the street to the guard's van, remarked, "Begorra, sir, it's a horrible-looking thing, anyhow."

THE NEW COLLEGE OF SCIENCE AND IMPORTED STONE.

Important Correspondence.

Mr. William Field, M.P., writes as follows:—

Blackrock, November 30th, 1907.

DEAR SIR,—Kindly publish copy of evasive reply to hand from the Board of Works in response to a letter asking definite information respecting above. The management of this affair shows that the policy of importing everything into this country, except money and employment, is still continued by the powerful permanent officials, as already proved in my pamphlets, "Ireland and Imperial Expenditure," and "Treasury Tactics."—Faithfully yours,

WILLIAM FIELD.

Office of Public Works, Dublin,
29th November, 1907.

SIR,—Your letter of the 23rd instant with reference to the new Royal College of Science for Ireland has been laid before the Commissioners of Public Works; and, with regard to the Portland stone to be used in the construction of the building, I am to ask you to be so good as to refer to the Board's letter of the 17th ultimo to the Lord Mayor of Dublin, since published in the Press, in which it was stated that Portland stone will be employed only in the ornamental facings of the building, and that the Irish materials to be used will represent not less than four-fifths of the brick and stone work to be carried out.—I am, sir, your obedient servant.

(Signed), H. WILLIAMS, Secretary.

William Field, Esq., M.P.,
Blackrock, County Dublin.

Blackrock, November 30th, 1907.

To the Secretary, Board of Works, Dublin.

DEAR SIR,—Thanks for yours to hand, but in your letter to the Lord Mayor it was stated that four-fifths of the building material was to be Irish. Surely £40,000 to be expended on Portland stone out of a total of £110,000 is more than one-third imported material. Your contention might be nearly correct if it meant that four-fifths of the cut stone dressing for facings were of home material; but what I understand your statement to convey is that the whole material used in the building would be four-fifths, but this should include the backings and the rubble fillings of the walls, also the mortar, bricks, and rough walling stones.

According to experience and examples, Portland stone is unfit for our climate. For instance, the Municipal Buildings, Cork Hill, has had all the string courses, etc., just taken out and renewed, and the same work has been started on the balustrade of the City Hall. Besides, we have many buildings with ornamental and decorative work of Irish sandstone, such as Letterkenny Cathedral, which can favourably compare with any structure of its class in

the United Kingdom. At the present moment in Belfast Irish sandstone is being utilised in buildings with more ornamental and decorative work than is specified for the College of Science. The native sandstone is more durable and equally suitable, being almost of the same colour, and in view of the fact that in reply to questions in the House, some of which I put myself, and many put by other members, about the use of Irish material in this building and the promises then made, I would suggest that that part of the contract relating to the importation of Portland stone should be rescinded, and Irish sandstone substituted.

The taxpayers of Ireland are entitled to receive a fair ratio of expenditure and restitution in respect to enormous overtaxation. In addition, the claims of Irish architects, quarrymen, stonecutters, and labourers have been sacrificed, and they also are entitled to consideration. Hoping this suggestion will be acceded to—Yours faithfully,

WILLIAM FIELD.

Office of Public Works, Dublin,
6th December, 1907.

SIR,—In reply to your letter of the 30th ultimo in reference to the new College of Science for Ireland, I am directed by the Commissioners of Public Works to state that whoever be your authority for the statement that £40,000 out of a contract of £110,000 (a figure in itself not accurate) will be spent on Portland stone, the statement is a grotesque misrepresentation if it means expended on Portland stone as delivered in Dublin, and a gross exaggeration even if it means expended on Portland stone worked and fixed in its position in the building. The Board are not at liberty to give figures, the publication of which might affect the contractors for the building; and they can, therefore, only say generally that the total sum to be paid for Portland stone, including material, delivery, workings, and fixing in position in the building, is very considerably less than £40,000, and that of this reduced sum probably not one-third is attributable to the cost of material and delivery in Dublin, the remaining two-thirds being for work to be done in Dublin.

The Board have already fully discussed the merits of Portland stone for use in Dublin with a deputation from the Irish Industrial Development Association, and will, therefore, only point out that your statement that, according to experience and examples, Portland stone is unfit for our climate, ignores such examples as the Custom House, the Four Courts, the Bank of Ireland, Trinity College, the King's Inn, and many other great buildings, examples which have been followed recently in the two largest public buildings in Belfast, the City Hall and Technical College.

While the Board are satisfied that Portland stone is the better stone, having regard to the Dublin atmospheric conditions, as well as for other reasons, it is quite possible that under more favourable conditions, as in the purer atmosphere of Letterkenny, to the recently-built Cathedral of which you refer, and of Portrush, where they are themselves using Mountcharles stone in the new post office, that latter stone will prove satisfactory, and they trust that there will now be a termination of the controversy as to the relative merits of the two stones, of which one result has been, by widely publishing the unsuitability of Mountcharles stone for a particular work, to suggest its unsuitability elsewhere, a result which they regret and deprecate as sincerely as you do yourself.—I am, sir, your obedient servant,

(Signed), T. F. FOLEY
(for Secretary).

William Field, Esq., M.P., Blackrock.

Blackrock,

December 9, 1907.

To the Secretary, Board of Works, Dublin.

DEAR SIR,—I beg to acknowledge reply to hand, which cannot be considered satisfactory. The figures are not given, nor is there any statement made regarding the rescinding of that part of the contract relating to the importation of Portland stone, which has been proved unfitted for our climate. Even if it were suitable, there is no need to import material, when there is such an abundance of native stone to choose from, unless the desire is to boycott everything Irish, as far as possible, with Government expenditure in Ireland. Apparently it is useless to write again to your Board, for being non-elected and practically irresponsible, they are superior to public opinion or Ministerial pledges, notwithstanding promises made in the House. Therefore, I will send a copy of this letter to the Chief Secretary and Lord Lieutenant, and later on ventilate the grievance in Parliament.—Faithfully yours,

WILLIAM FIELD.

CORRESPONDENCE.

Imported Stone in Ireland.

TO THE EDITOR OF THE IRISH BUILDER AND ENGINEER.

SIR,—Perhaps you could use the facts mentioned in enclosed cutting from last evening's *Cork Echo* for comment in your journal. Taken in connection with the matters dealt with by your leader in current issue, they force one to the belief that the policy of "the powers that be" in regard to our Irish stone industry is one of downright ostracism.—Yours, etc.,

R. S. M'NAMARA, Secretary.

Stonecutters' Union of Ireland,
21 Douglas Street, Cork,
December 4th, 1907.

The cutting referred to is as follows:—

**Haulbowline Extension Works.
Cut Stone to be Imported.**

A special meeting of the Committee of the Cork Lodge Stonecutters' Union of Ireland, was held at their hall, Douglas Street, to consider important correspondence relative to new works at Haulbowline.

The President stated that when the contract was declared to Messrs. Matchem and Co., in October, they received information that the specifications had been altered, so as to allow the substitution of foreign granite for Irish limestone. They immediately sent a joint deputation from Cork and Middleton lodges to Captain Donelan, M.P.—who, as long ago as March last, had obtained assurance from the Civil Lord of the Admiralty in Parliament, that local stone would be extensively used—and acquainted him with the facts of the departure from the original intention of the authorities. Captain Donelan, with the earnestness and energy which characterise his every effort for the industrial benefit of the people, at once entered into communication with the Admiralty, but with what result the correspondence would best show. The Secretary then read the following:—

Ballymona, Middleton,
20th November, 1907.

Dear Mr. M'Namara,—The enclosed letter from the Civil Lord of the Admiralty has just reached me, and I hasten to send it on to you. I much regret that I have not been successful, but I have done my best.—Yours very truly,

A. DONELAN.

Mr. R. S. M'Namara, Secretary, Cork Branch, Irish Stonecutters' Union.

Admiralty, 28th Nov., 1907.

Dear Captain Donelan,—I have gone very carefully into the subject of your letters of the 9th, 14th, and 16th November. I understand that in the specifications local limestone was originally specified. Some of the firms, however, asked the Department whether they might substitute granite for limestone in their tenders. Granite has been found to be a better material than limestone for harbour works; it was also found that the use of granite would cause a very considerable reduction in the cost of the execution of the work. The Admiralty has naturally, therefore, for this double reason, consented to the use of granite by the contractors. With regard to the question of Norwegian granite, the contractors are under no restriction as to the source of supply, provided the granite is up to a certain quality. No doubt, Irish granite would be used did its cost compare favourably with that of granite obtained from other sources. The fair wages clause provides that the wages paid shall be those generally accepted as current in the district, and any complaint as to the infringement of this clause shall be carefully investigated and promptly dealt with.—Yours faithfully,

GEORGE LAMBERT.

Capt. A. J. C. Donelan, M.P.

Mr. T. McCarthy said that it was evident from Mr. Lambert's letter that the suggestion of a change in the material had come from applicants for the contract, and not from the Admiralty engineers who drew up the original specifications. It was these applicants also who discovered that the foreign material was cheaper, as it suited their apparent intention to give the work to Continental quarries, where labour was much cheaper; but he did not believe that this sub-letting was permissible in a Government contract, nor that the officials at the Admiralty had power to override the intention of Parliament. The question, which involved a loss of upwards of £30,000 to this country, should not be left rest there, and he proposed:—"That Mr. Hennessey, Chairman, Urban District Council, Queenstown, and Capt. Donelan, M.P., be again written to regarding the holding of a public meeting in Queenstown, to protest

against the action of the Admiralty, and take such steps as may appear advisable to procure a reversion to the original specification."

The resolution was seconded by Mr. D. Bracken, and unanimously passed.

The Secretary mentioned, as a remarkable comment on the allegation that "granite had been found to be a better material than limestone for harbour works," the fact that some years ago the English engineers engaged in the construction of a large dock in South Wales, where granite was easily procurable, had specified and used Irish limestone from Lord Monteagle's quarries at Foynes, Co. Limerick.

Mr. Cahill proposed, and Mr. Ring seconded—"That the heartiest thanks of the meeting be conveyed to Captain Donelan for his untiring exertions on behalf of the stonecutters and quarry workers of Cork and vicinity, in this connection."

This was passed with acclamation, and the meeting adjourned.



TOWN TENANTS' ACT AND BUILDING IMPROVEMENTS.

Important Case.

At the City Sessions, on Monday last, the Hon. the Recorder delivered judgment in a case affecting the rights of landlord and tenant under the Town Tenants (Ireland) Act. The judgment was the result of an application, which came before his lordship last week, in which Patrick Byrne, No. 6 Nassau Street, who carries on there the business of a hairdresser, claimed £474 compensation under the provisions of the Act for disturbance to his business, owing to the fact that his landlord, Mr. W. Kingsley Tarpey, requires possession for reconstruction purposes.

Mr. Robert M'Ilroy, K.C., and Mr. M'Auley instructed by Mr. J. J. O'Meara appeared for the applicant.

Mr. S. L. Browne, K.C., and Mr. Timothy Sullivan (instructed by Mr. Thomas Furlong) appeared for the respondent landlord.

The Recorder, in giving judgment, said that the applicant had been in business as a hairdresser, since the year 1867, in the front and back rooms of the second floor of the premises, No. 6 Nassau Street. The remaining rooms of the house, as well as the adjoining houses, Nos. 7 and 8, at the time of the letting, and up to some few years ago, formed part of and were used as a hotel by the late Alderman Tarpey. The original letting to the applicant for three years expired in 1870, and since that date the rooms were held on a yearly tenancy of £84, free of taxes. The entire premises are subject to a rent of £324, and the taxes payable out of them was stated to amount to £211 annually. They were sold in March, 1906, by the executors of the late Mr. Tarpey to the respondent (his son) for £2,750. He, immediately after the purchase, proceeded to remodel the premises, put them into repair, laying out the ground portion as shops, and the upper part as offices or residential flats. He announced his intention to the applicant, and a discussion took place as to rent, and ended in the tenant insisting that if any rent were charged substantially larger than he was paying, he would retire from business. A notice to quit was served on the 1st of February in this year, and a correspondence took place. Offers were made, the most important one of which was that the applicant was offered the shop next adjoining for the carrying on of his business during the doing of the necessary work on No. 6, at the rent of £84, and before ejectment proceedings were brought, he was offered No. 6, after an expenditure by his landlord of both £400 and £500, at £120 a year and taxes. But the position which applicant took up was that if the No. 6 premises were not let to him at £100 a year, the landlord paying the taxes, he would have to retire from business, regarding as too high, as he stated, the rents of similar premises in the neighbourhood. It was admitted by the applicant and his valuer that even in the present out-of-repair condition, the premises were worth £100 a year. From that evidence the conclusion was irresistible that the original letting had been at a very low rent, as a barber's shop was, no doubt, considered an advantage and a convenience to the customers of the hotel, and the owners in fixing the rent had had full regard to that circumstance. The adjoining shop, No. 7, had since been let, on lease, at £150, increasing to £175, and the next adjoining shop was already let at £200 a year and taxes. His Lordship was satisfied on the evidence before him that for many years a letting of the premises could have been made at a rent of £100 a year, and in his judgment they had been let at a rent very much less than the rent which a solvent tenant would pay, and very much under the rent that similar rooms could have procured in any part of the same street. The applicant, although holding the premises for nearly forty years, had executed no improvement whatever on

them. It was not suggested, and could not be suggested, that the premises had any increased letting value as a barber's shop. The case put forward for the applicant was that he, by his own exertions, had built up a hair-cutting and hair-dressing business in those rooms; that their convenience to Kildare Street Club and Merrion Square had been the main factor in the creation of that business; that it was worth over £200 a year to him, and that he ought to be paid two years' purchase, viz., £474, for his good-will, because of his disturbance. The applicant declined to go out of the neighbourhood, because, he said, his business was localised; and he would not take other suitable premises in the neighbourhood, because the rent was deterrent. Neither would he stay in the premises and pay an increased rent—namely, an increase of over £16 annually; and he insisted that, as his business had been destroyed, he intended to give it up, and would not try to set up elsewhere. The respondent's case was that he desired to complete necessary improvements to his property, that he was prepared to make a large expenditure on the rooms let to the applicant, and a re-letting at a rent very much less than was paid for the adjoining shop; that the present rent of £84 was, and always had been, greatly below the ordinary letting value of the rooms; that that was most effectually proved by the fact that for rooms of a similar class within a few doors the rent was stated to be deterrent; that there were other vacant premises in Nassau Street suitable to the applicant's business, in removing to which there could be no loss of custom whatever, and the respondent contended that the fact that the premises were let to the applicant at a small rent did not give him the right to refuse to pay a reasonable rent, nor did it entitle him to retire from the business of a hair-dresser and call on the respondent to pay him two years' profits of that business. The claims for improvements and cost of removal were admittedly unsustainable in fact. Coming to deal with the claim for compensation in respect of injury to the applicant's goodwill, his lordship said that the fifth section of the Act gave to tenants of business premises who, at the time of the passing of the Act held under tenancies not less than yearly, at a rent not exceeding £100, the right to claim from the landlord compensation for loss of goodwill where such a tenancy was terminated, or where there was a refusal to renew a tenancy which had expired, and gave a like right where an increased rent was demanded, as a result of improvements effected by the tenant. It was quite clear that the landlord's obligation under the first portion of the section was imposed, or arose out of his failing to show good and sufficient cause for his conduct. That brought one face to face with the question of what was the nature and extent of the goodwill dealt with by the section. His lordship expressed the view that if in fact premises were under-let, it was a sufficient cause for terminating or refusing to continue a tenancy, if the tenant refused to agree to a reasonable increase of rent; and it did not, in his lordship's judgment, cease to be good and sufficient cause, because premises were old, and it was necessary to improve or remodel them, and the landlord was prepared to make the necessary expenditure. Whatever might be the true nature of the goodwill, if the answer of the respondent was sufficient, the matter was merely academic. However, his lordship had formed an opinion on it, and for what it was worth he was prepared to express it. He understood goodwill in a case of the nature he was dealing with to be a monetary loss shown to be caused by removal from a place in which a business had been created, to new premises in which, and to extend which, the owner of the business would be again driven to attract and localise customers. That would be very much a matter of degree. In the present case, where the applicant could get a shop in the same street, it would be practically *nil*, unless he was entitled to—and his lordship held he was not—to say: "Your premises were very cheap; I cannot get premises at anything like so low a rent in the same street, and you must in consequence make good the difference to me." In his lordship's opinion, the legislature never intended to mulct town landlords because of their rents being low, nor to stop the ordinary and necessary rebuilding and improvements in cities and towns, and unless he came to the conclusion that the statute worked those results, the present case was outside the mischief and injustice it was passed to remedy. He was, for the foregoing reasons, coerced to the conclusion that the claim was unsustainable, and ought to be dismissed, but his lordship declined to give costs. In concluding his judgment, his lordship said that he had so framed his decision that an appeal would lie. At the same time, he was strongly of the opinion that the applicant should come to a reasonable understanding with Mr. Tarpey, and suggested that that arrangement might be come to by this day week.

Mr. Tarpey fell in with his lordship's views, and agreed not to disturb applicant before that day week.

THE GEORGIAN SOCIETY.

For Recording Vanishing Examples of Eighteenth Century Buildings and Decorations in Dublin.

The following circular has been circulated recently in respect of a matter to which we have several times referred:—

"For some time it has been felt that an effort should be made to secure a permanent record of the fast disappearing structural and architectural details of the older houses of Dublin, which are, in many cases, excellent examples of eighteenth century work.

"The subject was recently brought before the Architectural Association of Ireland in the President's address, and a committee of the Association was appointed to confer with others interested in the project.

"This joint provisional committee has gone carefully into the matter, and has consulted a large number of persons known to be interested in the history and antiquities of the city.

"As a result they made the following recommendations:—

A society to be formed to collect sketches, photographs, and measured drawings of the architectural and decorative work to be found in the older houses of the city.

The society to be terminable, lasting for not more than five years.

A volume containing reproductions of selected sketches, photographs, and measured drawings, with explanatory letterpress, to be issued annually.

The annual subscription to be one guinea. A copy of the annual volume to be supplied for each guinea subscriber.

Each volume to contain a list of the names and addresses of subscribers.

"Already a good many subscriptions have been promised, the co-operation of the Architectural Association has been secured, and a number of prizes have been offered for sketches, measured drawings, and photographs.

"If the society is formed it is certain that a large amount of existing drawings, etc., will be available for its annual volumes; and it is hoped that the support and assistance of kindred societies working in Dublin will be secured.

"It is believed that the annual volumes will form a richly illustrated and valuable record of the work of this interesting period, and that the series of volumes—the issue being limited to subscribers—will become of enhanced value.

"A meeting to consider the whole subject, and, if it is thought right, to form the society, will be held in the Royal Irish Academy House in January.

We understand that Dr. E. McDowell Cosgrave and Mr. P. L. Dickenson have consented to act as hon. secs. (*pro tem.*), and that Dr. J. P. Mahaffy, Senior Fellow T.C.D., has consented to take the chair at the proposed meeting, which, we believe, will shortly be announced to take place.

All communications respecting the proposed society may be addressed to the hon. secs. at the rooms of the Architectural Association, Frederick Lane, Dublin.

Eighteenth Century Dublin.

The following circular has been issued to members of the Photographic Society:—

"Your Council are in receipt of a letter from J. Alfred Scott, Esq., M.D., one of our past-presidents, from which the following is an extract:—

I have been asked to find out could any of the members do anything to help a committee formed in connection with the Architects' Association to collect and record architectural remains in the neighbourhood of Dublin, which are likely to disappear, mainly eighteenth century work. The large buildings are well looked after and cared, so most of the work would run on private dwellings, ceilings, mantels, balconies, door-cases, stair-cases, etc., etc. Already some prizes have been offered, and I understand that it is likely that more may be in time.

It is hoped to publish in some form suitable illustrations. A public meeting is hoped for soon, to advertise the affair, and if some information could be had before that the committee would better know what to rely on.

I think if some of the members would be inclined to assist it would be a decided gain to the P.S.I. in *studios* as well as a help to archaeology.

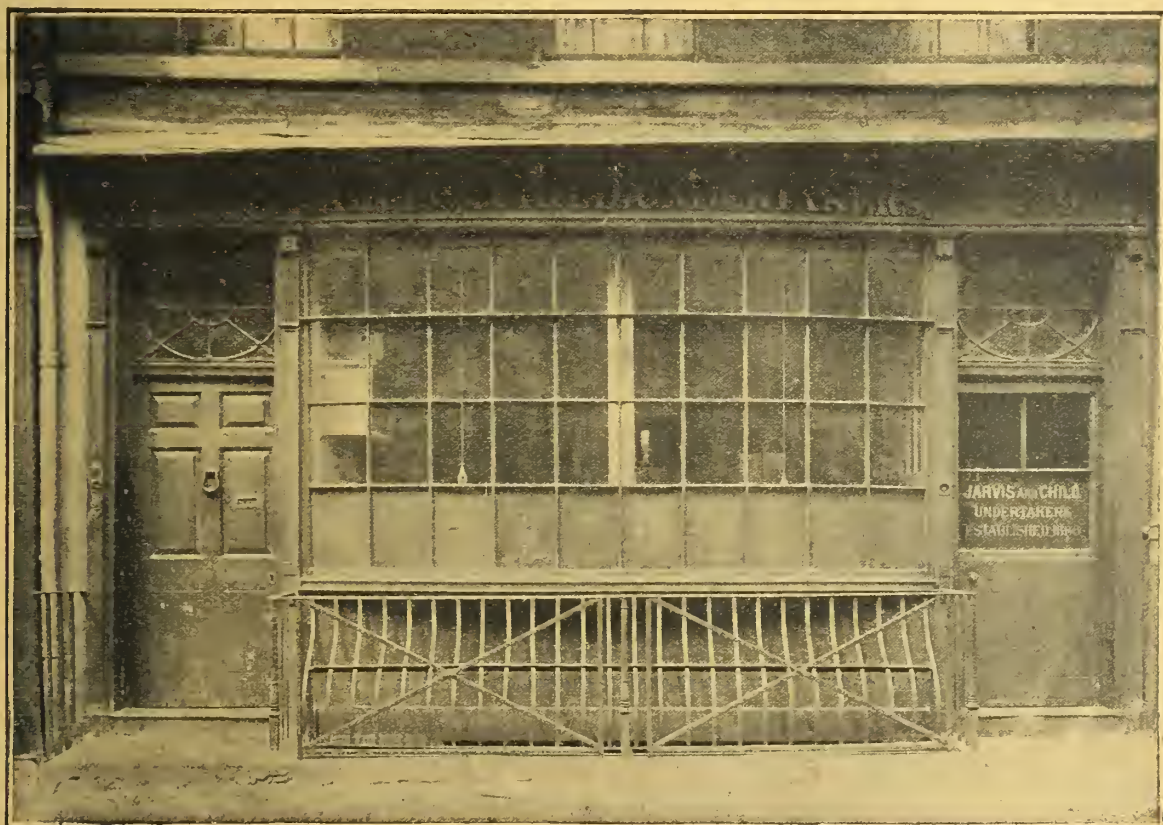
"We will therefore be glad to receive from members an intimation of any negatives or prints they could supply for the purpose; and we also desire to draw their attention to our own Record Section with a view of entering into communication with those members who have negatives or prints suitable for either Dr. Scott's purpose or our own Record Section."

THE DESIGN OF SHOP-FRONTS.*

In our last issue we referred to the recent publication by Mr. Batsford of a most admirable work on shop-fronts, entitled, "English Shop-Fronts, Old and New," by Messrs. Horace Dan, M.S.A., and E. C. Morgan Wilmott, A.R.I.B.A. This is one of the most interesting books of the kind we have come across for some time, and most opportune. The design of shop-fronts steadily deteriorated, in common with all other forms of design, from the opening of the nineteenth century until that much-abused period, the "early Victorian" era; yet we question very much if the average present-day shop-front is an improvement on, or even as good as, the early or mid-Victorian age. The convenience, pliability, and comparative cheapness of rolled-steel sections appear to have demoralised not only the shopkeeper but his architect, until we have in the ordinary run of shop-fronts that absurd anachronism of a great brick or stone front (apparently) supported on a great sheet of plate glass. When we apply that form of design to a corner site—for choice, a "rounded" corner—we get the type at its worst. As a revolt against this type, we have, on the other hand, Mr. Norman Shaw's monumental facade in Regent St., London—that controversial facade which has been so ex-

modified, if not obliterated, that impression. But, be that as it may, we have here the two opposing schools of design. The shopkeeper is entitled to every consideration of his views—first and foremost because, with the average architect, he is in a position, not merely to indicate but to dictate his wishes, but, in addition, all good architecture must be suited to its purpose, and if the shopkeeper says a large window space is necessary for the display of his wares, we must give consideration to that want. All we can do is to try and keep him within reasonable bounds. It is all nonsense to talk to the average trader of the ease and elegance with which a Parisian modiste will cast a single robe upon a chair or other support as the sole "dressing" of a window, for all trades lend not themselves to methods of the modiste or the florist. Therefore, anything that will help us to realise the possibility of a good shop-front, reasonably suited to the needs of the vendor of goods, is to be welcomed.

"English Shop-Fronts" contain not merely examples of really beautiful old English shop-fronts, but some very good specimens of modern design, and a few that can hardly be similarly described. The former, however, more than compensate for the latter; and show what can be done by the architect when he sets his mind to it, and is not hampered by too restrictive a client.



No. 137 Long Acre, London.
(From "English Shop-Fronts.")

tolled by architects, and so damned by shopkeepers. Here we have the two types utterly opposed to each other, in conflict and in contending opposition for favour. There is no doubt about which type appeals naturally to the architect, but there is equally little doubt about the shopkeepers' views on the subject. We confess, heresy as it may seem, to a good deal of sympathy with the Regent Street shopkeepers, whose splendid sheets of plate-glass were, so to speak, ruthlessly torn from them, and shivered to fragments, while upon them was imposed, without "with or by your leave," the (to them) whole strange and foreign style of Mr. Shaw's massive lowering arches—a sympathy that was not the less when we remembered that, with all their faults, the old front of Regent Street, with its uniform height and rather stately curve, had a certain most decided elegance of its own. Indeed, we own that the first view we had of the then newly-rising structures, shops, instinctively reminded us somewhat of those arches under the Dublin Loop Line of Railway, so tunnel-like was the first impression; however, the rearing upon them of the superstructure has greatly

Of the old shop-fronts we reproduce two, but by no means the best, from Long Acre, London, and Louth, Lincolnshire, respectively, but they serve as examples of a very good type of shop-front.

The old shop-fronts, such as Messrs. Dan and Wilmott illustrate, readily range themselves into well-defined types, such as those we illustrate, of plain but pleasing form; then the more ornate examples, with the full cornice and column or pilaster of the order, the pronouncedly "Adam" types, such as the old design by J. Carter, on page 12, and the house in Dean Street, Soho; and, again, that type illustrated by that well-known and beautiful old shop-front in the Haymarket, and the elegant shop from Aldgate, which forms the frontispiece of the book. Other and much older types there are, too, such as that from Butcher Row, Shrewsbury.

One feature all these old shop-fronts possess in common—it is this: that to the intelligent use of the glazing bar they owe much of their elegance, and, stripped of it, they would greatly fall in value. Is it quite impossible to induce the modern shop-keeper to believe that in many trades his wares would be infinitely more attractive behind the retirement and just faintly mysterious environment of the glazing bar.

Dublin formerly possessed quite a number of very good

*"English Shop-Fronts, Old and New"; selected and specially photographed, together with descriptive notes and illustrations. By Horace Dan and E. C. Morgan Wilmott, A.R.I.B.A. London: B. T. Batsford. 1907. Large 8vo, 10 in. x 7 in. Price 15s. net. 52 colotype plates and 25 illustrations from drawings and photographs.

old shop-fronts. The only one of this type we can recall, as still standing, is in Francis Street—old, dirty, and neglected, and doomed to inevitable destruction. There is a later and very inferior front in Clarendon Street, and there are still a number of yet later fronts, possessing some graceful attributes. Of this class, may be mentioned Messrs. Hamilton, Long and Co.'s, in Lower Sackville St., and Messrs. Butler's Medical Hall opposite in the same street. Messrs. Evans, in Dawson Street, had a rather interesting front until quite lately, when it was "improved" away. We believe that, even yet, a number of examples might be photographed and collected. We commend this suggestion to the consideration of the proposed Georgian Society.

As the authors themselves observe:—"No apology is needed for the publication of this volume upon shop-fronts. It is a subject full of architectural interest, but, owing to a mistaken policy of economy on the part of shopkeepers, or a feeling that an unbroken display of glass was all that was necessary, the erection of the shop-front has usually been left more or less to chance. The result has been quite disastrous from an architectural point of view, and our street architecture has suffered a great deal by this neglect."

In the modern section of the volume we get a series of the best examples of new shop-fronts, though none are quite so effective as the old. Some of the examples are, of course, evidently inspired by the old. For instance, there is a very

nice front in Dover St., London, by Mr. Walter Cave, architect. It is suggested seemingly by the old front in the Haymarket, but in the case of the new front, the wheel-like "Adam" tracery in the transoms over the larger sheets of glass has a somewhat restless and "revolving" appearance that suggests a little of effort or striving after effect, that is absent in the more natural old examples.

In addition to the purely artistic aspect, the work includes many most useful details, such as sunblinds, roller shutters, etc. Pavement

and stall-board lights are fully described and illustrated. It is also suggestive of many varying types of treatment, such as projecting or recessed features, etc.

The book is produced in Mr. Batsford's best style, and more than that cannot be said. The illustrations include twenty-five beautiful collotype plates, and a large number of illustrations in the text.

ANSWERS TO CORRESPONDENTS.

Sandstones in the Province of Leinster.

A correspondent writes:—"Will you kindly let me know the principal freestones for building purposes in the province of Leinster, and especially those in or around Co. Kildare."

We know of no Irish sandstones in or around Co. Kildare. Clonslea has a good stone. There is also good stone at Drombane, Co. Tipperary, and near Dungarvan, Lismore, and elsewhere in the Co. Waterford. The Lismore stone is a red sandstone. These are about all we can recall. Perhaps some of our readers can oblige.

Messrs. E. H. Shorland and Brother, of Manchester, have recently supplied a number of their patent Manchester stoves, with descending smoke flues, and Manchester grates for the additions to the Workhouse Infirmary, Plymouth.

OUR SOUTHERN LETTER.

(From Our Correspondent.)

Haulbowline Dockyard Extension.

This work is now being pushed forward by the contractors. Application has been made to the Harbour Commissioners for the use of Carrigrennan limestone for the temporary wall to be built across the existing dock. The reason for this application was owing to the prices asked by local quarry owners for rough stones being considered unreasonable by the contractors.

In connection with the cut limestone specified for the work, a difficulty seems to have arisen owing to the quarry owners refusing to quote for the supply of stone cut ready for fixing. The contractors have now applied for permission to substitute Norway granite in place of cut limestone. This development is regrettable, as the value of the limestone to be used amounts to something approaching £30,000. It is stated that the granite can be obtained at a lower price than the limestone. It is to be hoped that before placing the contract for this portion of the work abroad that a further effort will be made to obtain the contract locally, or, in the event of this failing, that efforts will be made to get the supply of granite from either Galway or Co. Down. The writer can speak from experience in connection with the Galway granite, the supply and workmanship being good, and the price moderate.

Railways.

The Kerry County Council have decided to apply to the Treasury for a grant for the purpose of constructing a light railway from Listowel to Tarbert Island, along the old mail coach road, with slight deviations at Listowel to join the G. S. and W. Railway, the County Council granting the road free of charge.

They also propose that if the above work be sanctioned, a grant should also be given for the construction of a branch line from Leitrim to Ballylongford, a distance of about

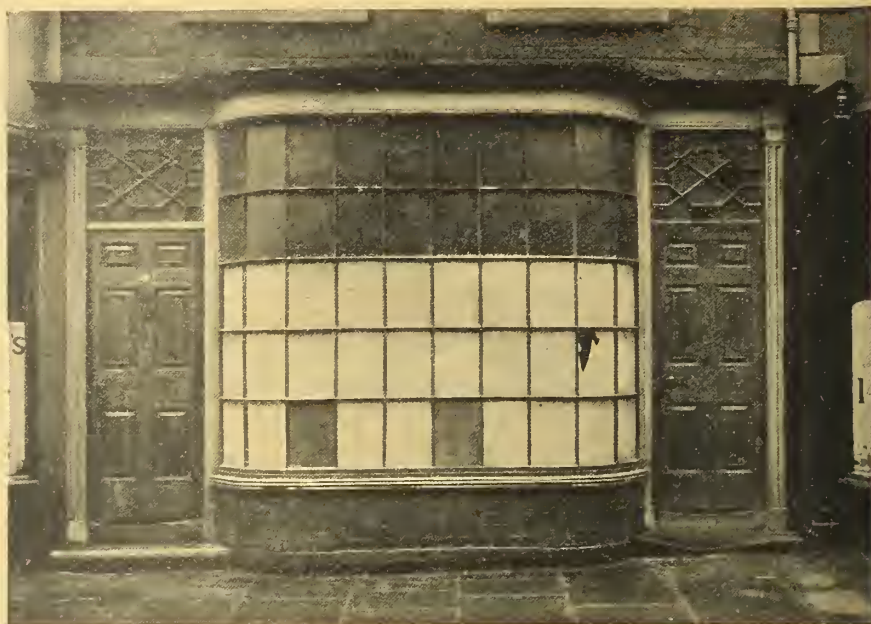
3½ miles, to join with the above railway at Leitrim cross.

Mr. T. W. Russell, M.P., with Professor Campbell, Assistant Secretary to the Department of Agriculture and Technical Instruction, have inspected the route of the proposed railway between Queenstown and Ballycotton, and they are of opinion that the railway would open up a fine agricultural district, and develop a fine fishing district and seaside resort, and expressed themselves as being strongly in favour of the carrying out of the scheme. They stated that there was only one difficulty in connection with the scheme from an engineering point of view—namely, the provision of an open bridge at East Ferry. This would easily be got over; but, of course, the bridge would add to the cost of the scheme.

General.

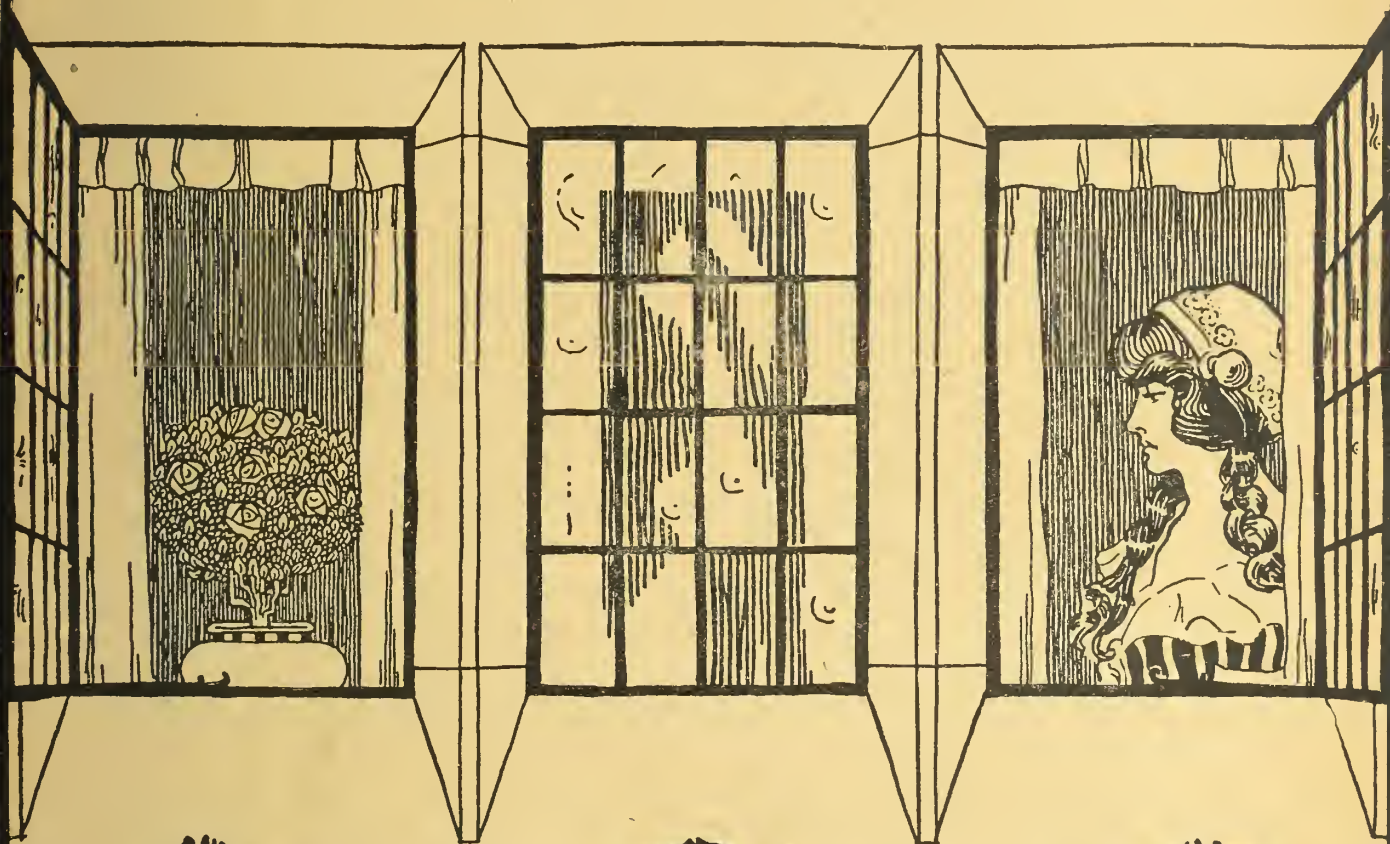
The Kerry County Council have received the sanction of the Local Government Board to a loan of £1,200 for the purpose of repairing the Kenmare Suspension Bridge, repayment to be spread over twenty years, and the loan to be issued in two instalments of £1,000 and £200.

Mr. W. H. Hill, jun., M.R.I.A.I., of Cork, has been appointed Diocesan Architect for the Province of Munster, and was chosen from amongst twenty-eight candidates by the representative body of the Church of Ireland. Mr. Hill, jun., is to be congratulated on this distinction. He is a member of the firm of W. H. Hill and Son, Cork, who are well known in the South of Ireland in connection with many important architectural works. This appointment was rendered vacant through the death of Mr. R. Fogerty, of Limerick, who had held the office for over twenty years.



Old Shop, Louth, Lincolnshire.
(From "English Shop-Fronts.")

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DECEMBER 14, 1907.

No. 25

CONTENTS.

PAGE.

Topical Touches	845
The New College of Science and Imported Stone	846
Correspondence	849
Town Tenants Act and Building Improvements	849
The Georgian Society	850
The Design of Shop-Fronts	853
Our Southern Letter	854
LEADING ARTICLE:—	
Trades Unions	856
Royal Institute of the Architects of Ireland	858
Institution of Electrical Engineers	858
Our Illustrations	858
Imports	858
Institute of Architects of Canada	858
Building News	861
The Society of Architects	862
Engineering Items	865
The Failure of the Quebec Bridge	866
The Distribution and Intensity of Wind Pressure on Structures	868
Engineering News	868
Contracts	871

TRADES UNIONS.*

"The Law of Trade Unions" is the subject of a very interesting and useful little text-book by Mr. T. Seton Jevons, B.A., Barrister-at-Law, and is one of Mr. Effingham Wilson's very excellent books on matters of law affecting building affairs.

Trades Unions have in our time become so important—so far-reaching—in their influence, not merely upon the particular trade to which a union may belong, but upon practically the whole trade and commerce of the country. Moreover, unions, once looked upon by those outside their ranks as mere combinations of workmen, banded together for the purpose of raising the rates of wages, are generally regarded in a more favourable light, even by those opposed to them as workers of much mischief. They are now generally held to be almost essential to protect the interests of workers, and where they avoid a dictatorial and interfering spirit, their existence may be welcomed even by employers. Where the trades unions have acted with strict impartiality, and have not hesitated to repudiate unreasonable action by their own members, they have unquestionably gained in respect, and increased their prestige. Indeed, there are not wanting large employers of labour ready to admit that the existence of trades unions, and their recognition has tended towards peace, and that they prefer to deal with a responsible body rather than with a disorganised and discontented rabble of workmen. It is just the difference between meeting a civilised and disciplined army, under strictest military rule, and a horde of barbarians. Either may conquer a

country, but the influence of one will be far more desolating than the other.

In view of the modern importance of trades unions, it is desirable that those who belong to them, or have to deal with them, should have some knowledge upon the laws governing them.

Mr. Jevons, in his book, discusses the analogy between modern trades unions, the old "monopolies," and the craft guilds to which trades unions have often been compared. The only analogy between the monopolies and the trades unions is so far as monopolies tended to impose restrictions upon trade. The resemblance to the guilds is, however, much greater, and it is rather curious to remember that while the crafts were legally recognised for centuries, it was not until the passing of the Trades Union Act in 1871 that trades unions as such were recognised by law. The contrast is all the greater when it is mentioned that the guilds were generally established by charter or statute, and it was not until quite later times that the doctrines of common law were applied to trades combinations. The conduct of the old trades guilds was regulated by customs guaranteed to the boroughs and through bye-laws. In London, for instance, in 1212 an order was issued fixing the wages of masons, carpenters, tilers, and others. Against such an ordinance a member of the community could not appeal to the common law, and the minor or municipal courts were presided over by the legislators themselves, from which it may be deduced that the guilds, being mainly or wholly composed of masters, the journeymen had very little voice in fixing the rates. The crafts guilds maintained their privileges granted by charter, and in some cases even establishing their own courts of justice, and a man's rights as a member of a guild became a kind of vested interest, which descended to his son. Of this custom we have a kind of survival in the usage of the Dublin bricklayers, who maintain a kind of caste system in relation to apprenticeship.

By degrees the power and influence of guilds declined, and they came under the control of the common law, and eventually ceased to exist in their original form of true trades guilds. In Ireland they have entirely ceased to exist in any form, save so far as they may be said to be represented by the trades unions. Indeed, the Dublin Brick and Stone Layers' Society calls itself a guild, and claims to be identical with the ancient craft guild, but we are not acquainted with the grounds upon which this is asserted, nor how far it can be substantiated. It would be rather interesting to have this information. The physicians and surgeons, of course, claim to be ancient guilds, but they were hardly crafts guilds. The Royal College of Physicians in Ireland date from 1626, in which year King Charles I. directed their incorporation; but no charter was obtained owing to the troubled state of the times. In 1667 Charles II. gave the Dublin physicians a charter, and in 1692 William and Mary granted a new and extended charter. The College of Surgeons in Dublin claims descent from the first incorporation of medical men in the United Kingdom—the fraternity or guild of barbers, established by Royal Charter in Dublin on 18th October, 1416, by King Henry VI. A later charter, which is preserved in Trinity College, was granted by Queen Elizabeth in 1572.

There is, in the National Gallery, Dublin, an inter-

* "Trade Unions," by T. Seton Jevons, B.A., B.L. 1907. London: Effingham Wilson. Price 1s.

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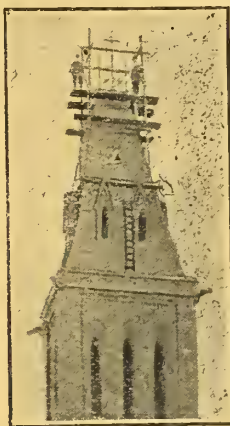
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Specimen of Labourers' Cottage, on the plan which was awarded the First Prize by the Local Government Board, has been erected with blocks made on the " Junior " Machine at the Dublin International Exhibition (Irish Industries Section) where machine can be seen.

Agent for North of Ireland—Mr. W. J. SHAW, Donegal Square West, Belfast.

esting picture showing the "Barber-Surgeons" presenting an address to Henry VIII. The deputation is depicted as approaching the king's majesty on their knees in the engaging manner of the times. In 1780 the Dublin Surgeons formed themselves into a "Society of Surgeons," and it was so recently as 1784 that they obtained a charter disassociating themselves from the barbers.

In 1562 the "Statute of Apprentices" was passed (5 Eliz. c. 4), and first established a kind of code for controlling the employment of apprentices throughout the whole country (England), and prescribed the rate of wages, hours of labour, and that the number of apprentices should be subject to public control, and from hence on the laws in connection with the guilds took a more definite form. This contrasts distinctly on the one hand with the practice of the bricklayers, and on the other with the architectural profession, for instance where there is no limit and no regard to the requirements or possibilities of employment.

The "monopolies" to which reference has been made were the subject of legislation since about 1602, but space forbids our here discussing these Acts. Speaking of the alleged connection between the guilds and the trades unions, Mr. Jevons controverts this by saying that the evidence is all the other way, and quotes Webb's History of England, "that at no point in their history (the guilds) do we find the slightest evidence of the branching off from them of independent journeymen's societies," while, when the West of England clothiers "began, between 1717 and 1725, to be inconvenienced by the 'riotous and tumultuous' clubs and societies of wool-combers and weavers, who made bye-laws and maintained a standard rate, they did not put in force the existing law, but successfully petitioned Parliament to act 'to prevent unlawful combinations of workmen, etc.' (12 Geo. I., c. 34.)

In the book under review we get an insight into the difficulties under which trades unions laboured in the early days. Under George III. they had to face the "Combination" laws; in that reign, however, they received some relief, only to have it repealed in the next; the doctrine of "restraint of trade" operated severely against them, and they were in effect unlawful assemblers—they could not even prosecute a defaulting treasurer, nor if they entered into a contract with a member, could it be enforced on either side—they were, in fact, considered to "operate in restraint of trade."

The Act of 1871 removed the burden of illegality. No man was henceforth liable to prosecution for conspiracy for belonging to a trades union.

This Act of 1871 became virtually the charter of trades unionism. This Act was amended, or, rather, amplified, in 1876. In 1875 was passed an Act, known as the "Conspiracy and Protection of Property Act," one of the most notable clauses in which was the prohibition of "persistently following" and "watching and besetting." But the Act of 1906 practically repealed this by legalising picketting. These are the chief Acts which affect trade unions. There are others, of course, and some indirectly affecting the unions, such as the enactments relating to the compensation of workmen for injuries, etc.

These are only a few of the points dealt with in a very interesting and instructive little book, and for further detail we must refer our readers to the work itself, which only costs 1s., and gives a pretty clear account of the history and present position of trades unions.

ROYAL INSTITUTE OF THE ARCHITECTS OF IRELAND.

The annual general meeting will be held in the Institute Rooms, 20 Lincoln Place, Dublin, on Thursday, December the 19th, at 4 o'clock p.m., for the purpose of receiving the report of the Council, electing Council and auditors for the ensuing year and transacting other business.

The annual dinner will be held in the Shelbourne Hotel, Dublin, on Thursday, December 19th, at 7.30 o'clock p.m.

—JAMES H. WEBB, Hon. Sec.

INSTITUTION OF ELECTRICAL ENGINEERS.

The annual dinner will be held in the Gresham Hotel on Thursday evening, 19th inst.

OUR ILLUSTRATIONS.

Sketches by Mr. T. Raffles Davison.

As promised in our last issue, we now reproduce some sketches by the well-known draftsman, Mr. T. Raffles Davison. They are excellent examples of his style.

IMPORTS.

Port of Dublin.

November 28th—Per Rebekka, from Trondhjem, 33,590 pcs. floorings, 27,522 pcs. scantlings, to order. Per Winga, from Goteborg, 80 bds. iron, 3,700 bds. laths, 2,764 pcs. battens, 134 bds. mouldings, 24 doors, to order.

November 30th—Per Velinheli, from Port Dinorwic, 100 tons slates, R. Martin and Co. Per Lady Wolseley, from London, 700 sacks cement, T. Dockrell Son and Co., Ltd. Per Lady Hudson-Kinahan, from London, 600 sacks cement, Wallace Bros., Ltd.

December 2nd—Per Niord, from Mo. and Domejo, 192,524 pcs. floorings, boards and battens, T. and C. Martin, Ltd. Per Spencer, from Connah's Quay, 130 tons bricks, T. Archer.

December 3rd—Per Lord Londonderry, from Baltimore, 38 tons slates, 2,005 pcs. firwood, 386 pcs. oak, to order. Per Lady Martin, from London, 1,000 sacks cement, T. Archer.

December 5th—Per Fos, from Miramichi, 68,749 pcs. deals and ends, W. and L. Crowe, Ltd.

December 6th—Per Bangor, from Middlesboro', 340 tons cement, J. P. Corry and Co., Ltd.

December 7th—Per Hank, from Fredrikstad, 63,646 pcs. floorings, etc., Robinsons, Ltd.; 67,230 do., do., Brooks, Thomas and Co., Ltd. Per Dunmore Head, from Riga, 84,358 pcs. deals, 463 loads firewood, to order.

December 9th—Per Lady Roberts, from London, 480 sacks cement, McFerran and Co.

December 10th—Per Thyra, from Sundswall, 158,870 pcs. floorings, 35,767 pcs. Scantlings, Richard Martin and Co. Per Fane, from Gefle, 167,437 pcs. boards and battens, W. and L. Crowe, Ltd.

INSTITUTE OF ARCHITECTS OF CANADA.

Following the agitation that for so long has been maintained by the architectural profession in Great Britain and the United States anent the question of registration, the time has apparently arrived when Canadian architects are about to take definite steps in the matter of forming what is to be known as "The Institute of Architects of Canada." So much has been written in English and American architectural journals regarding the vexed question of registering architects that scarcely anything new can be said upon the subject that has not hitherto been directly or indirectly referred to. Statistics have been brought forward to prove that in some States of the Union, where there has been put into practice some such system of registration as is now being contemplated in this country, the beneficial results accruing therefrom have been considerable. On the other hand, just as strong testimony has been adduced to show that in places where the registration system has been given a fair trial no good results have been obtained.

Referring to the outline of the project of incorporation for the proposed Institute, with which doubtless most of the profession are by this time familiar, we note that the "Institute of Architects of Canada" has as its object to facilitate the acquirement and interchange of professional knowledge among its members, and more particularly to promote the acquisition of that species of knowledge which has special reference to the profession of architecture, and further to encourage investigation in connection with all branches and departments of knowledge connected with the profession.

Such an ambitious undertaking is certainly worthy of all commendation, and if the formation of the Institute will make for the improvement of the architectural profession in Canada it should undoubtedly be given every possible encouragement.—"The American Architect."

Sligo.—The Sligo Asylum Committee at their last meeting decided to apply for a loan of £1,500 to build seven cottages on the lands of the asylum for married attendants.



Bray.—The tender of Mr. Robert Mosley, Bray, for erecting boundary walls at Purcell's Fields, amounting to £201, has been accepted. The other tenders were:—Mr. Fraser, £225; Mr. Jordan, £200; Mr. J. Kelly, £226; and Mr. Dickson, £208 10s.

Bawnboy (Co. Cavan).—Bawnboy Rural District Council have adopted a petition to be presented to the Local Government Board for their sanction to the Labourers' Cottage scheme at an estimated cost of £2,677—the estimate for each cottage being £190.

Belfast.—A meeting of the Council in committee was held for the purpose of receiving and determining upon alternative plans for the proposed new abattoir, in accordance with the resolution of the Council in committee. Alderman Hugh Bell moved and Councillor Dr. H. O'Neill, J.P., seconded:—"That the following recommendation of the Market Committee of the 23rd November, 1907, be and is hereby approved and adopted:—"That the report of the surveyor on plans for proposed abattoir on the Stewart Street site, and the alternative plan for the two-storey building, be entered on the minutes and forwarded to the Council in committee, with a recommendation that the plan for the two-storey building as modified and estimated to cost £32,118 be adopted." On being put to a vote, this resolution was lost, 11 voting for it, and 27 against. It was then moved by Councillor Robert Johnson and seconded by Alderman Dr. J. King Kerr, J.P.:—"That steps be taken by the Market Committee to utilise the site of the existing abattoir (M'Auley Street) by obtaining plans and estimates for the provision of an up-to-date establishment sufficient for the present and future requirements of the city, and utilising so far as possible those portions of the present building which are suitable." To this the following amendment was moved by Councillor W. J. Moore, J.P.:—"That prior to any action being taken by the Market Committee a report be obtained by them from three qualified experts, hereinafter named, as to the suitability or otherwise of the site of the existing establishment for the purposes of an abattoir—the medical superintendent officer of health, the President of the Ulster Medical Society, and the medical inspector of the Local Government Board in Belfast." This amendment was carried by a majority, and it was also passed as a substantive motion. The proceedings afterwards terminated.

Crosshaven.—Tenders have been received for the erection of a dwelling-house and stables at Crosshaven. Plans and specifications have been prepared by Mr. D. J. Buckley, C.E., M.R.I.A.I., 53 South Mall, Cork.

Clonmel.—Messrs. Thos. Holloway and Son, of Cahir, are at present engaged in the construction of two consumptive hospitals at the Lunatic Asylum. The work is progressing rapidly. Mr. Fuller, Great Brunswick Street, Dublin, is the architect.

Cahir.—Messrs. Thos. Holloway and Son have secured the contract for building an addition to the offices of Messrs. Going and Smith, Ltd., of this town.

Cork.—Very substantial progress has been made with the works for the extension and improvement of the Church of the Most Holy Trinity, Father Mathew Quay. The massive blocks of stone which compose the walls, piers, and pinnacles are admirable in their treatment; shafts and traceried heads of the three Gothic windows which light the added structure on the eastern side. In the new northern gable there has been re-erected the chancel window, with its rich stained glass memorial of the Irish Liberator. The new chancel is united to the extended nave by an arch of graceful proportions, and its floor is necessarily raised some feet over the level of the present sanctuary. The arcade which separates the nave aisles is carried forward to the full extent of the additional length. On the eastern side of the chancel two chapels are constructed—those of the Blessed Virgin and St. Francis—and the sanctuary proper is enlarged to adequate dimensions. The floor will be set with richly tessellated pavement, and the ceiling treated in a manner harmonising and contrasting with the sombre panels of the older roof. The superintending architect is Mr. J. F. McMullen, and the con-

tractors, Messrs. John Delaney and Son, from the designs of Messrs. Ashlin and Coleman, of Dublin. The original contract was for a sum of £3,500. The cost will probably tot up to four thousand before the church is finished.

Mr. John Barnet, contractor, Goleen, has obtained the contract for additions to Lloyds' Signal Station at Browhead. Mr. F. Hayes, M.R.A.I., is the architect for the work.

Carrickmacross (Co. Monaghan).—It has been decided to build new Intermediate Schools in the town of Carrickmacross for the Ven. Archdeacon M'Glone, D.D., P.P., V.G. Already a good sum of money has been subscribed locally for the above object, and it is expected the work will commence early in the New Year. Mr. J. V. Brennan, C.E., Belfast, is the architect. Tenders have been invited for the work.

Cavan.—The Treasury has sanctioned a loan of £3,500 for the erection of a new Town Hall for Cavan, and the making a new street from the end of Market Square, opening on Farnham Street. When certain necessary formalities have been complied with, an instalment of the loan, amounting to £1,000, will be advanced for the project. Tenders for the building of the Hall will be considered at the meeting of the Cavan Urban Council on Wednesday, 8th January next. Mr. Wm. A. Scott, Mountjoy Square, Dublin, is the architect.

Dublin.—A special meeting of the Corporation was called to consider the whole matter of the structure at the Nelson Column, and after some discussion it was decided to settle the action brought against the Corporation and to take down the structure at once.

At a recent meeting of the North Dublin Rural District Council, on the motion of Mr. Jas. Hannon, seconded by Mr. M'Loughlin, the following resolution was adopted:—"That the North Dublin Rural District Council are surprised at the length of time that has been allowed to elapse since the enquiry for the erection of labourers' cottages, as the Council consider they should have the Inspector's report before now, as this delay is the cause of keeping the Council from building sixteen cottages at Howth, which had been passed at the previous enquiry."

The statue erected opposite Leinster House to the memory of Queen Victoria is now completed and ready for the unveiling ceremony.

Tenders will shortly be invited for carrying out some extensive alterations to Nos. 153, 154, and 155 North King Street, for Messrs. Macken and Co., according to the designs of Mr. Geo. T. Moore, C.E. The quantities are being prepared by Mr. James Mackey.

Dalkey.—Housing of the Working Classes Act, 1890—53 and 54 Vict., Cap. 70. Local Government Board (Ireland) Provisional Orders Confirmation (No. 1 Act), 1907. (7 Edw. VII., Cap. 108.)—The Dalkey Urban District Council, being the Local Authority within the meaning of the above-mentioned Acts and Orders, applied to the Local Government Board for Ireland for the appointment of an arbitrator between the District Council and the persons interested in the scheduled lands injuriously affected by the carrying out of the provisions of the Dalkey Order, 1907, in the area known as the Greenmount Lane Area. Mr. Thomas Manly Deane, architect, has held an arbitration inquiry between the Urban District Council and the persons whose interests are affected.

Galway.—At a meeting of the Galway Technical Institute it was decided to ask the Department to give the committee facilities to erect a new building.

Howth.—Mr. Lacey, contractor, Howth, has just completed a detached residence on Howth Hill for Mr. Hussey, according to plans prepared by Mr. F. Hayes.

Kingstown.—At the last meeting of the Urban District Council the report of the Construction Committee was adopted, which recommended, amongst other matters, the alteration of the plans of the buildings in Paradise Road from four storeys to three. Mr. Kennedy considered the committee were losing time in not going on quicker with the scheme, as they were, he said, almost in the same position now as when the matter first started.

Ovoca.—The erection of a memorial to commemorate the memory of the late Dr. A. J. C. Hudson, J.P., Ovoca, is going on satisfactorily. A representative committee have the matter in hands.

Rathfarnham.—At an adjourned quarterly meeting of the County Dublin County Council, Mr. Francis M'Bride, J.P., moved a recommendation that a sum sufficient for providing a suitable courthouse be included in next financial year's estimate. He said to those who had not seen the present courthouse that the communication from the magistrates asking for a new one did not at all overstate the necessity for a new one. Mr. Hewson seconded the motion. Mr. Collins opposed the motion on the ground that there were already a number of works in progress in the county.

and every district would be wanting a new courthouse. Rathfarnham had a very suitable place for a courthouse. The motion was lost by 12 votes to 4.

Rockcorry (Co. Monaghan).—Plans for a new dispensary residence for the medical officer at Dawsonsgrove, near Rockcorry, in the Cootehill Union, are at present in the hands of the Local Government Board. The dispensary doctor there has written to the Cootehill Board of Guardians urging them to carry out this work without delay, as "his present abode is unsanitary and unfit for human habitation."

Strabane.—Strabane Town Hall.—Mr. A. D. Price, M.Inst.C.E., engineering inspector for the Local Government Board, has held an inquiry in the Urban Council Chambers, Strabane, concerning the application of the Urban Council for a loan of £3,800 to complete the new Town Hall.

Sligo.—Messrs. McDonagh Brothers, drapers, have recently acquired a fine house adjoining their present establishment in Castle Street. Plans are being prepared for annexing these premises and combining same with the existing premises. The newly-acquired premises will also enable them to form a connecting link with their woollen warehouse in Market Street. The existing premises in Castle Street, which consist of two large houses, re-built about five years ago, compare favourably with those of any provincial town in Ireland. Messrs. A. Scott and Son, of Dublin, are the architects, and were also the architects of the existing premises.

The extensive premises in Knox Street, Sligo, recently and still partly occupied by Mr. Perry, ironmonger and cycle agent, are now being reconstructed to suit as a large drapery warehouse for Messrs. East Brothers. Messrs. A. Scott and Son, of Dublin, are the architects, and Joseph Mullen, John Street, Sligo, is the contractor.

Wexford.—The Corporation have practically decided upon building a new street from George Street to the House of Mercy, and in order to secure that, when the street is built, some building ground will be available, they propose to take sufficient land either by agreement or by compulsion which will enable them to make a street sixty feet wide, with proper footpaths, and also allow them 150 feet attached on either side on an average, to be reserved by the Corporation. The estimated costs will be as follows:—Taking down two houses, which must come down in order to let the new street be built, £1,000; cost of making new street, estimated to be about £2,500; land, £1,500; total, roughly speaking, £5,000.

Wexford.—Mr. Andrew Cullan, New Ross, has secured the contract for additions to the Convent of the Good Shepherd in that town. Mr. George L. O'Connor is the architect.

The following Rural District Councils have applied to the L.G.B. to confirm improvement schemes made by them under the Labourers Acts:—

Boyle No. 2.—Estimated cost of £45,487 10s. od.

Birr No. 2.—Estimated cost of £9,095

Clogher.—Estimated cost of £10,540.

Cootehill No. 1.—Estimated cost of £15,282.

Cootehill No. 2.—Estimated cost of £11,158.

Innishowen.—Estimated cost of £10,620.

Kilbeggan.—Estimated cost of £7,330.

Louth.—Estimated cost of £9,190.

Portlaoine.—Estimated cost of £28,102 5s. od.

Roscommon.—Estimated cost of £74,795.

South Dublin.—Estimated cost of £58,000.

Stranolar.—Estimated cost of £23,040.

Tullamore.—Estimated cost of £45,000.

THE SOCIETY OF ARCHITECTS.

The Council send us the following particulars relating to their travelling studentship, and we trust that some Irish students may compete:—

The Travelling Studentship.

SIR,—I am desired by my Council to send you herewith particulars of the above, and to ask that you will kindly permit these to be placed before your readers.

Intending competitors who are not at present on the register of students of the society should communicate with me at once, when the necessary papers will be sent to enable them to make application.

In the meantime, there is no reason why such candidates should not (pending their admission to the register) proceed with the preparation of the drawings, which must be sent in by May 1st, 1908.

I shall be pleased to supply additional copies of the particulars, or give any other information.—Yours, etc.,

C. MCARTHUR BUTLER,
Secretary.

The Travelling Studentship (1908) Value £25 and a Silver Medal.

Qualification.

Candidates for the Travelling Studentship shall be persons whose names are on the register of students of the Society, and who have paid their subscriptions for the current year. (The maximum age limit is 28 years.)

Delivery of Drawings.

The competition drawings, upon which the studentship will be determined, must be delivered at the society's offices not later than the 1st day of May, 1908, under motto, and must have attached thereto a sealed envelope containing the competitor's signature and address appended to a declaration that the drawings are the candidate's unaided work.

Awards.

The studentship is of the value of twenty-five pounds (£25), and carries with it the silver medal of the Society. It will be awarded annually, the holder being required to undertake, between June 1st and October 1st, a sketching tour of not less than three weeks duration.

Conditions.

The successful candidate must, within fourteen days after the award, notify the secretary of the date of the commencement of the tour and its proposed locality, and will then receive a sum of fifteen pounds (£15).

A diary of the tour must be submitted with the measured drawings, sketches, and notes, all of which must reach the secretary before October 1st, 1908.

Subject to the Council being satisfied with the work executed during the tour, a further payment of ten pounds (£10) will be made, and the silver medal presented to the successful candidate at the first ordinary meeting of the session (November, 1908).

The right to reproduce the drawings is vested in the Council.

The studentship may only be held once by the same person.

Disqualification.

A candidate who does not adhere to the conditions in every particular will be disqualified.

Subject for the Design Competition, 1908.

A public library on the open access system, to be erected on a level corner site open on two sides. The estimate of cost, which must not exceed £5,000, to be based on cubical contents, measured from the bottom of footings to half-way up the roof. The dimensions and total to be stated with the price per cubic foot.

The method of estimating the cost, and the materials proposed to be used, to be noted on the drawings.

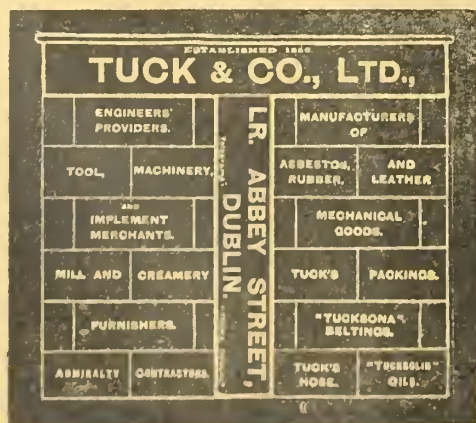
The building may be set back.

Drawings Required.

A complete set of working drawings to $\frac{1}{8}$ -in. scale, comprising plans, longitudinal and cross sections, also elevations, block plan (1-16-in. scale) showing drainage, and two sheets of $\frac{1}{2}$ -in. details.

The drawings are to be of such a character as would be required by a contractor to carry out the work, and are to be executed on not less than double-elephant size sheets, mounted on strainers or millboard.

The Fermoy Rural District Council have applied to the Local Government Board for the loan of £1,150 for the purpose of providing a water supply for Rathcormac, and an enquiry has already been held in connection with this matter.



ENGINEERING SECTION.

ITEMS.

We are informed that the Irish Branch of the Royal Institute of Public Health will hold examinations at the City Hall, Dublin, for Sanitary Sub-officers and Meat Inspectors on December 20th. Intending candidates may obtain further particulars from the Secretary, R.I.P.H., 17 Upper Fitzwilliam Street, Dublin.

* * * *

The extension of the waterworks at Longford will shortly be taken in hand, and the Urban Council invites tenders for the construction of an auxiliary storage reservoir, filter beds, clear water tank, and laying of sundry pipes. The scheme has been designed and plans prepared by Mr. Thomas Biggs, Ass.M.Inst.C.E.I., and the tenders are required to be submitted to the Town Clerk, Longford, by December 17th, 1907.

* * * *

The suggestion made by the Improvements Committee of the Corporation that they may be directed to confer with the Port and Docks Board with a view to having the bed of the Liffey cleaned, is one that will commend itself to the citizens of Dublin. Since the new main drainage system was opened a noticeable improvement in the condition of the river has been effected; but the bed, impregnated with the sewage which for so long a period has flowed over it, still emits its characteristic odour at certain seasons. This is especially the case near the quay walls, where, for long periods of low water, the sewage from the adjoining streets fell in noisome cataracts directly on the exposed river bed, covering it with layer upon layer of scum and filth, which it would take years of the river's natural flow to remove. At a time when labour is plentiful, such a desirable work might with advantage be put in hand, and the disturbance of the polluted soil would be less unpleasant to the neighbouring inhabitants during the winter. The suggestion carries with it no engineering difficulties of importance, nor would the operation be expensive—at all events, not in proportion to the immense benefits which a clear and sparkling Liffey would confer on the Irish metropolis.

* * * *

The Surveying classes, which are being held by the Engineering and Scientific Association, have attracted a fair number of students, and, under the guidance of expert instructors, portions of the Phoenix Park are being chained and levelled. The fees for the course are low, and, therefore attractive, and special terms were arranged under which members of the Architectural Association of Ireland may join in the lectures and field work. It is rather a striking commentary on the energy displayed by the modern pupil, to find that all the members of the classes are architects of some experience, who have probably discovered, like most of us, that the older we get the less we know. The engineering and architectural pupils of to-day, more particularly in Ireland, either entirely neglect their studies or occasionally are galvanised into spasmodic activity of short duration. It is a matter for regret, and the cause must be inherent, for splendid facilities are now available in Dublin and Belfast for studying the intricate details of these professions. The clamour for the use of Irish materials will ever remain hollow until those who have to design in these materials realise the responsibilities that devolve upon them, and the future of Irish architecture appears gloomy when on every hand it can be seen how little the majority of students take their work seriously.

* * * *

In another column will be found a condensed report of a paper by Mr. Lilly on the Quebec Bridge disaster. The theory which he advanced as the probable cause of failure, viz., "wave formation," was based on a series of experiments conducted in the laboratory at Trinity College, on sections of joists and tubes of various forms, square, triangular, and circular. With the machinery available, only small sections could be tested, and at the conclusion of his lecture Mr. Lilly remarked the necessity for further research work being carried out on the lines indicated, expressing the hope that money would be forthcoming to meet the expenses incurred. Incidentally, it would appear that Irish engineers are by no means enamoured of American "pin-jointed" construction, nor of the temerity with which our brethren across the water design with an extremely low factor of safety. The Forth Bridge had the joints of the

ordinary plate and rivet form. Although, as one of the speakers said, knowledge is only obtained through failure, yet knowledge may be too dearly purchased when the failure is of such magnitude as that which recently thrilled the engineering world.

* * * *

The question of the appointment of a "Manager and Superintendent of the Electric Lighting and Power Works" of the Limerick Corporation is developing. It will be recollected that when the matter of the appointment was first raised, a suggestion was made that an examination of candidates should be held, the engineer to the Cork Tramway Company being requested to act as examiner. His report on one of the candidates, Mr. M'Namara, with regard to the latter's knowledge of electric engineering, was, we understand, by no means satisfactory; yet in face of this report Mr. M'Namara was elected. Mr. Ambrose Hall, J.P., has now taken up the matter, and threatens to hold a number of the Aldermen and Councillors responsible for their action in voting for Mr. M'Namara's appointment; "personally liable for such illegal and corrupt voting, and any inconvenience and loss that may occur resulting from such votes," as Mr. Hall bluntly phrases it. The Mayor naturally repudiated the term "corrupt voting," and eventually a resolution was carried under which Mr. Hall will be asked to withdraw the expression or prove it.

* * * *

We are inclined to sympathise with the Corporation in the attitude it has adopted, as corruption is an ugly word to use concerning a public body, unless proof is clear and convincing. At the same time, it is worse than useless for a Corporation to hold examinations for appointments unless the report of a responsible examiner is adopted. It is not so long since another post was offered, knowledge of Irish being a *sine qua non*. Yet the candidate elected, according to the examiner, scarcely knew a word. The results of such undignified and weak action are deplorable, local government throughout the country becomes a by-word, and properly qualified men will refrain from offering themselves for examination when every element of fairness is eliminated from the procedure. So men of slight attainment are gradually filling responsible positions, the standard of knowledge is lowered, and the public as well as the profession of engineering are among the sufferers.

* * * *

A strong protest was made at a recent meeting of the Waterford Board of Guardians, by members of various political leanings, against the action of that Board in dismissing Mr. Thomas Scully, C.E., for having given evidence in favour of Lord Ashtown's claim for damages at the Waterford Quarter Sessions. Mr. Scully had explained that, as a member of the Institution of Civil Engineers, he had been called on to estimate the damage that had occurred to Glenaherry Lodge, that as an engineer he inspected the premises with a perfectly open mind, that his estimate had been made out without bias and to the best of his ability, and that he was prepared to stand by that estimate in any court in Ireland. Such explanation, however, did not appeal to the members of the Board, who cannot, apparently, differentiate between business and politics, and quite fail to comprehend that an estimate of damage may be computed by an engineer, who has his living to earn, without the cause, about which he was not questioned, being traced in a partisan spirit to its furthest ramification. The Chairman, who appears to be a despot in a small way, would scarcely listen to the protest, and the whole affair is little short of a scandal. It is a pity that the people who elect these representatives do not teach them not to usurp functions to which they have no right, and we extend our sympathy to Mr. Scully for the treatment accorded him in the exercise of the duties of his profession.

* * * *

It is well-known that most building by-laws insist on drain-pipes under dwellings being of cast-iron. Many engineers consider that this regulation could be extended, with advantage, to embrace all drains in towns, and specify iron pipes for all the systems which they design. Coated with Angus Smith's solution, such pipes last, as a rule, for a long period; being in longer lengths, the joints are fewer than those of stoneware pipes; a severe test may be applied, and dangers of leakage are obviated to a great extent. But it is sometimes overlooked that iron pipes are almost useless

under certain conditions, sulphuretted hydrogen, chlorides, nitrates, nitrites, and ammonia all have corrosive action, whilst under salt water cast-iron is converted into a grey graphitoid mass in a few years. The *Sanitary Record* quotes the case of an engineer who quite recently produced a section of a 3-inch main, which had been retained by him as a specimen of a quantity removed from the ground after being laid for only eighteen months. This specimen, which had been treated with Angus Smith's solution, had been part of a main laid late in the year 1905, and along its upper length it was perforated with holes from $\frac{1}{2}$ -inch to $1\frac{1}{2}$ -inch in length and $\frac{1}{2}$ -inch wide, and at distances varying from 6 inches to 12 inches apart. In this case the pipe had been laid amongst cinders, a most potent cause of corrosion. It is, therefore, by no means safe to lay iron pipes in all situations, and whatever the faults of extra double-glazed fireclay and stoneware pipes, there is certainly no fear of corrosion. The chief disadvantage of the latter lay formerly in the joint, the expansion of the Portland cement frequently cracking the socket, so that a second test revealed leakage. But a bituminous or medina cement joint quite obviates this difficulty, and there is little question that a carefully laid and jointed stoneware system, securely bedded on concrete, is more satisfactory, economical, and durable than is the case with iron.

* * * *

A conference of co-operative societies was held at Clones, on Saturday last, to consider the advisability of taking steps to establish a service of Renard road trains in certain districts in the vicinity, where railway facilities are not available. There were present many delegates from Monaghan, Cavan, and Leitrim. The Secretary to the Conference was directed to communicate with Mr. Basil Hope, the Irish representative of the Renard Company, in order to arrange an interview. We have learned on reliable authority that for some time past negotiations have been in progress between the company and the Irish Agricultural Organisation Society, for the right of the latter to run the trains in Ireland. It, therefore, seems as if the new proposals will take the place of the moribund Iveagh-Pirie motor scheme, and, doubtless, the establishment of such services will serve a useful purpose in developing the country beyond the radius of the railways. Some means of communication will eventually have to be adopted, and road trains would appear to be more suitable than light railways, as the number and route can be varied to meet changing conditions, and no capital has to be sunk in permanent way, which, as in the case of the railway at Birr, may prove subsequently useless. It will be absolutely essential, however, that the roads over which the Renard train services run should be put in proper order. It was the failure of the County Councils to undertake to bring the roads under their jurisdiction up to a proper standard that killed the Iveagh-Pirie scheme.

* * * *

It is apparently the intention of the Department of Agriculture and Technical Instruction to take steps to deepen the river Blackwater, in which, during recent years, the heavy floods and strong currents have formed "scours" and "shoals," quite changing the course of the river. This is especially the case near Youghal. Mr. T. H. Poole, C.E., has been instructed by the Department to take soundings and check the surveys made some years ago, and submit a report on the present condition of the river.

THE FAILURE OF THE QUEBEC BRIDGE.

At the general meeting of the Institution of Civil Engineers of Ireland, held on Wednesday, December 4th, the President, Mr. J. H. Moore, in the chair, Professor Lilly read a paper on the recent disaster which occurred to the bridge in course of construction across the river St. Lawrence at Quebec. There was a large attendance of members and visitors. The minutes of the previous meeting having been read and signed, several new members and associate-members were declared elected, and a ballot for candidates was held. The method of balloting adopted by this society is possibly convenient and economical, but it occupies valuable time, and it is perhaps a pity that some other scheme cannot be devised. Professor Lilly opened his paper with some interesting statistics of the bridge, which, it will be remembered, was fully described in a previous issue of the *IRISH BUILDER*. The structure was designed by Mr. Theodore Cooper, in consultation with other eminent American engineers, the contractors being the Phoenix Bridge Co., of Phoenixville. The southern cantilever was practically completed when it collapsed into the river, carrying with it eighty-five workmen, of whom seventy-five per-

ished. While this death roll has been previously exceeded, no engineering disaster of similar magnitude with regard to its details has occurred.

Illustrating his remarks by a series of lantern views of the bridge and diagrams of the structure, Professor Lilly proceeded to describe some of the peculiar features of the design. Following the usual American practice, all the joints of the members were on the pin principle, which, besides allowing the greater portion of the work to be executed in the shop, theoretically permits the members to adjust themselves to any slight alterations in the stresses. The struts were formed of parallel plates, braced by lattice angle irons, a similar construction being followed in the main chords, the four plates of which were each 4 ft. 6 in. deep. The braces were, however, of comparatively small section, and to this fact amongst others the lecturer attributed the failure. The live load was calculated at 4,246,000 lbs., the dead load at 11,888,000 lbs., and the wind pressure at $\pm 9,060,000$ lbs., the maximum stress at nearly 14.5 tons per square inch, and the factor of safety at 2, which is considerably lower than that adopted by engineers in Great Britain. In the Forth Bridge, with a span some ninety feet less than that at Quebec, the maximum stress was taken at $7\frac{1}{2}$ tons per square inch, a factor of safety of about 4. Professor Lilly, by means of photographs and sketches, developed his main theory, that the bridge collapsed through the braces being of a much less sectional area than the plates, the proportion working out to about 1-24th in the main chord, where it is probable the failure occurred, buckling having been noticed in the ninth bay two days prior to the accident. The formulæ at present in use deal with the sectional area, but have no regard to the proportions of what may be called the web to the flanges, or to the secondary stresses which may be set up. From research made in the laboratory at Trinity College, it was found that the wave formations became shorter as the web more nearly approached the flanges in sectional area, and it was thus proved that the members would be therefore proportionately stronger. In designing the Tubular Bridge across the Menai Straits the data available for the use of the engineers were insufficient, and the necessary experiments were made on models, the weak members being strengthened after each collapse until stability was obtained. It is curious to note that wave formation in these early efforts was noticeable, and that stability was not assured until the sectional area of the sides was two-thirds that of the top and bottom. Regularity is also the feature of the Forth Bridge, the chords, pillars, and struts of which are tubular. It may, therefore, be assumed, according to the lecturer, that the failure at Quebec was due to a section of irregular shape, viz., thick plates and bracing of insufficient section.

Mr. Griffith, engineer to the Port and Docks Board, proposing a vote of thanks to Professor Lilly for his interesting paper, expressed his sympathy with the American engineer, who, at the close of a long and successful career, found himself faced with this dreadful catastrophe. He felt reluctant to discuss the paper until the publication of the report of the Commission that was at present reviewing the causes. It was a point to be considered that even the factor of safety of 2 had not been reached, as neither the live load or wind pressure had come into play; consequently the bridge collapsed under the dead load alone, and some other cause than under estimation of the stresses might be discovered as the reason of failure.

Mr. Ryan seconded.

The President, in putting the vote, which was carried by acclamation, said that when he was at Trinity College his professor told him to always design a little stronger than strong enough, a motto which in these days might be commended to the engineering student.

MANHOLE CHANNELS.

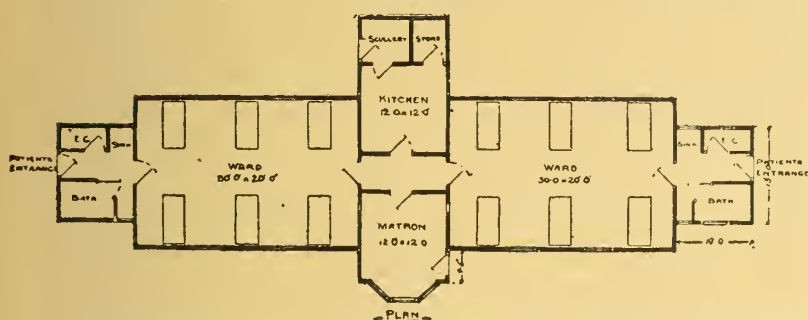
The following paragraph is taken from the last monthly report of Dr. Wynter Blyth, the Medical Officer of the Borough of St. Marylebone:—

"The architect of an important public building designed and had constructed two manhole chambers with channels made of Portland cement instead of the usual glazed channels. The writer declined to pass the same, considering that the said channels were not in accordance with the by-laws. The architect argued that they were equally efficient, and, on the Public Health Committee confirming the action of their officer, appealed to the London County Council. The appeal was dismissed. The case therefore must be taken as a precedent, and it will not be prudent for builders or architects in this district to attempt to make such channels in cement."

ESTABLISHED 1834.

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27 GOLD and SILVER MEDALS.

THE DISTRIBUTION AND INTENSITY OF WIND PRESSURE ON STRUCTURES.

By T. E. STANTON, D.Sc., M.Inst.C.E.

At the ordinary meeting of the Institution of Civil Engineers, London, on Tuesday, 3rd December, Sir William Matthews, K.C.M.G., President, in the chair, the paper read was "Experiments on Wind-Pressure," by T. E. Stanton, D.Sc., M.Inst.C.E.

The experiments described in this paper form the second part of the research on the distribution and intensity of the pressure of the wind on structures, which was proposed by the Committee of the National Physical Laboratory as the first investigation to be undertaken in the Engineering Department, and was commenced by the author in 1902.

The first part of this research, of which the results were communicated to the Institution in December, 1903, was the investigation of the resultant pressure and distribution of pressure on flat plates normal to and inclined to the direction of a uniform current of air.

As those experiments were made in a channel 24 inches in diameter, the dimensions of the plates were necessarily small, but between the range in dimensions obtained, which for circular plates was from $\frac{1}{4}$ inch to $2\frac{1}{2}$ inches in diameter, the results indicated that the resistance of geometrically similar plates was proportional to the area of the plates. In the case of dissimilar plates, however, such as square plates and long rectangles, the resistances per unit area differed considerably.

The value of the resistance so found in these experiments on small plates was somewhat smaller than that determined by Dines, Frowde and Langley for plates of the order of 1 square foot in area. For comparison, the values of the constant, K , in the pressure velocity relation,

$$P = K V^2$$

are given in the following table:—

Experimenter	Method	Value of K
Dines	Whirling Table	.0029
Frowde	Moving Carriage	.0037
Langley	Whirling Table	.0033
Author	Plate in uniform current	.0027

On the completion of this part of the work, it was decided to make observations on flat surfaces of areas ranging up to 100 square feet when exposed to the wind, since general experience tended to show that in actual winds whose velocity was not uniform over time or space, the mean pressure per square foot on a large surface was considerably less than that on a small one. As a knowledge of this variation in resistance with the dimensions of the structure, if it exists, is all-important in design, the investigation of this problem was made the chief feature of the new experiments.

For the purpose of the work a steel windmill tower was erected in the grounds of the National Physical Laboratory at Teddington. The experimental boards and models of structures were attached to a light framework carried by the cap of the tower, the height of the centre of the boards from the ground being 50 feet.

After some preliminary experiments, the method of observation finally adopted was the determination of the constant in the pressure-velocity relation for pressure-boards of varying dimensions and for the models of structures. It was found, as anticipated from a knowledge of the variable character of the velocity of the wind, that single observations were quite worthless for the purpose in view, but that, if for any pressure-board or model about 200 observations of the velocity of the wind and the corresponding pressure on the board were taken, it was possible to obtain a fairly accurate value of the constant. In these observations the velocity of the wind was estimated from a pair of pressure-tubes, similar to those used by Mr. Dines in his anemometer, placed about 15 feet above the centre of the board. These tubes were connected by lead pipes to a sensitive water-gauge, of the type used in the author's previous experiments, placed at the foot of the tower. The resultant pressure of the wind on the board was estimated from a measurement of the pressure produced in a closed cylinder of air by the deformation of a thin steel diaphragm forming its cover which was in contact with the centre of the pressure-board. This pressure was also transmitted through lead pipes to the foot of the tower, and there measured by a similar tilting gauge to the one used for the velocity estimations. The simultaneous observations of pressure and velocity were only possible in the short periods of time in which the velocity of the wind was fairly constant. Such periods, lasting from 2 to 5 seconds, were found to occur about once a minute in a fairly steady breeze.

The results of these observations on three pressure-boards, one 5 feet by 5 feet, on 5 feet by 10 feet, and one 10 feet by

10 feet, gave practically identical values of the constant in the pressure-velocity relation. In units of pounds per square foot and miles per hour, the mean value of this constant for the three boards was 0.0032. As this value agreed so well with the average of those obtained by previous experimenters when using plates of the order of 1 square foot in area, it was not considered necessary to make experiments on plates smaller than the one 5 feet by 5 feet in the present case.

Further observations on the intensity of the pressure at the front and back of the boards appeared to show that the cause of the higher value of the constant compared with that obtained in the case of the small plates in the 24-inch experimental channel, was the relatively greater intensity of the negative pressure at the back of the boards compared to that at the back of the small plates.

Experiments were also made on a model of a braced girder 29 feet long by 3 feet 7 inches deep, and on a roof model whose sides were 8 feet by 7 feet. The ratio of the resistance per unit of area of the model girder to that of a square board in the wind was found to be precisely the same as the ratio of the resistance per unit of area of a small model of the girder made to a linear scale of 1 in 42 to a square plate in the experimental channel and uniform current used in the previous experiments.

The resultant pressures on the roof were obtained, for both windward and leeward sides, at angles of 30, 45, and 60 degrees inclination to the horizontal, and indicated the considerable suction effects on the leeward side of a roof when the pressure inside the building is augmented from the windward side by open doors or windows.

These results lead to the conclusion that the resistance of a complicated structure in the wind can be accurately predicted from a determination of the resistance of a small model of the structure in an experimental channel.

ENGINEERING NEWS.

Cavan.—The Cavan Urban District Council are advertising for a competent person for the position of Town Surveyor and Waterworks Superintendent, at a salary of £40 a year.

Cookstown.—The directors of the G.N.R. invite tenders for the construction and erection of a galvanised corrugated iron shed, fifty feet by eighteen feet, two storeys high, with steel framing and steel roof principals, at their Cookstown Station. Tenders close on the 30th inst. with Mr. T. Morrison, Amiens Street.

Dublin.—A special meeting of the Corporation is being called to consider the whole matter of the structure at the Nelson Column. The traders are complaining that its existence is calculated to interfere with their Christmas trade. The Committee in charge of the matter state that they represent traders in the immediate locality with a valuation of £20,000, and that some consideration ought to be extended to so influential a body of ratepayers.

Dublin.—The directors of the Alliance and Dublin Consumers' Gas Company will receive tenders from iron foundries, gun-barrel manufacturers, timber merchants, rope-makers, etc., for goods to be delivered on the company's works, Great Brunswick Street, in such quantities as may be required from time to time up to 31st December, 1908. Tenders to be lodged on 27th inst.

Greystones.—Rathdown No. 2 Rural District Council.—Public Lighting of Greystones.—The Rathdown No. 2 Rural District Council have invited parties interested in electric, gas, or other approved systems of lighting to send in estimates and full particulars of any scheme they would be prepared to instal, and which would be suitable for lighting the district of Greystones, County Wicklow.

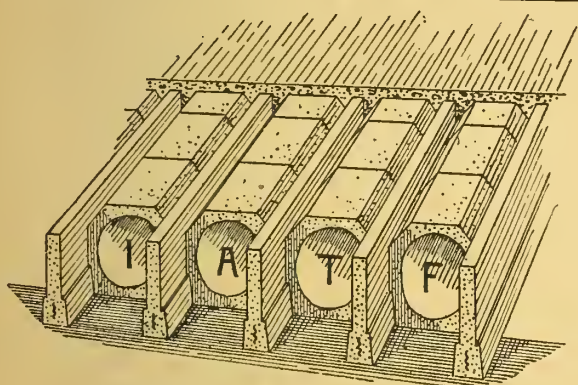
Inniskeen.—Tenders are invited for the erection and completion of a villa residence at Inniskeen, County Monaghan, for Mrs. A. Johnston. Tenders close on the 16th inst. John F. McGahon, Dundalk, is the architect.

Larne.—Larne Rural District.—The Larne Rural District Council have received tenders for carrying out work connected with the extension of Whitehead sewerage outfall.

Naas.—The Naas Urban District Council will on the 7th Prox. consider tenders for carrying out the Naas sewerage works, which comprise the construction of pipe sewers, manholes, flush tanks, storm overflows, lampholes, fences, filters, septic tanks, and concrete effluent carriers, and the preparation (including under drainage) of about six statute acres of land for irrigation ground. The plans and specification have been prepared by the Council's engineer, Mr. F. Bergin, B.E.

"DRAIN OR SEWER."**The Combined Drainage Bill.**

With regard to the Bill dealing with combined drainage which has been framed by the committee of a conference of representatives of the City and Metropolitan Borough Councils, the Public Health of Camberwell Borough Council reported last week that they approved of the draft Bill, with the substitution of the following clause defining a "drain" for the one at present in the Bill:—"In the construction of the Metropolis Management Acts, 1855 to 1890, and the Acts amending the same the word "drain" shall be deemed to apply to and include any drains of and used for the drainage of one building only or premises within the same curtilage and made merely for the purpose of communicating with a cesspool or other like receptacle for drainage of two or more buildings or premises occupied by different persons is conveyed, and shall also include any drain for draining any group or block of houses by a combined operation pursuant to the order or direction or with the sanction or approval of the Metropolitan Commissioners of Sewers, or under the order of any vestry or district board, and shall also include any drain which has not been approved as a sewer either by the Metropolitan Commissioners of Sewers or by the Metropolitan Board of Works or the London County Council."—*The Builder*.



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The Longford Urban Council invite Tenders for the Construction of an Auxiliary Storage Reservoir, Filter Beds, Clear Water Tank, and Laying of Sundry Pipes, etc., in connection with the existing Waterworks.

The Tenders should be deposited at my Office not later than December 17th, 1907, when Maps and Plans, etc., which have been prepared by Mr. Thomas Biggs, Ass. M.Inst.C.E.I., can also be inspected, and a Specification, Bill of Quantities, and Forms of Tender will be given to any Contractor applying for same, on payment to me of a sum of £1, which will be returned on receipt of a *bona fide* Tender and the return of all documents furnished by the Council.

The Council will not bind themselves to accept the lowest or any Tender, and the selected Contractor must give an undertaking to the Council that he will employ local labour and materials when such can be obtained, and will have to give a Bond of Guarantee Society for due performance of work in such sum as Council may determine.

NICHOLAS LAMB,

Town Clerk.

Longford, Nov. 23, 1907.

NAAS URBAN DISTRICT.**NAAS SEWERAGE WORKS.**

The Naas Urban District Council will, on Tuesday, 17th January, 1908, consider Tenders for carrying out the above Works, which comprise the Construction of Pipe Sewers, Manholes, Flush Tanks, Storm Overflows, Lampholes, Fences, Filters, Septic Tanks, and Concrete Effluent Carriers, and the Preparation (including Under Drainage) of about Six Statute Acres of Land for Irrigation Ground, in strict accordance with plans and specification prepared by the Council's Engineer, Mr. F. Bergin, B.E.

The Plans, etc., can be seen at my Office, on any day (except Sundays) between the hours of 10 o'clock a.m. and 4 p.m., or at the Office of the Council's Engineer, 36 Westmoreland Street, Dublin.

No Tender will be considered which is not on the printed form to be had from the undersigned.

Tenders, accompanied by a schedule of prices, and containing the names and addresses of two solvent sureties willing to join in a bond of Six Hundred Pounds (£600) for the due performance of the contract within the specified period, will be received up to 11 o'clock a.m. on the 6th proximo.

The Contractor will be expected to give a preference to local labour as far as possible, and he must pay all expenses in connection with the preparation and execution of, and Stamp Duty on, contract and bond.

The Council do not bind themselves to accept the lowest or any Tender, and the acceptance of any Tender will be provisional upon the sanction of the Treasury being obtained to the Loan authorised by the Local Government Board to defray the cost of the Works.

By Order,

M. GOGARTY,

Clerk of the Council.

Council Offices, Naas,

3rd December, 1907.

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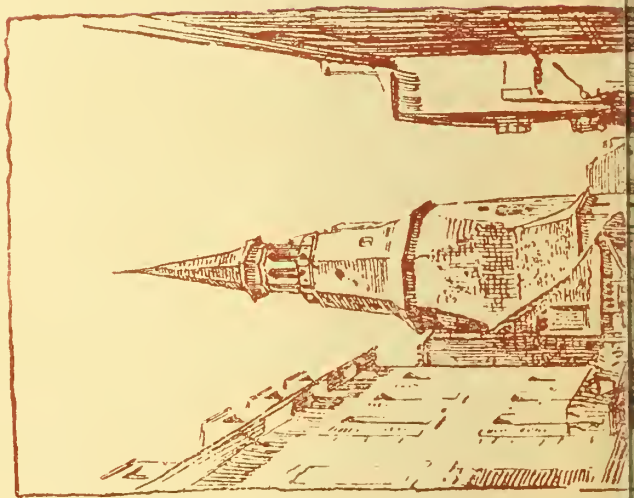
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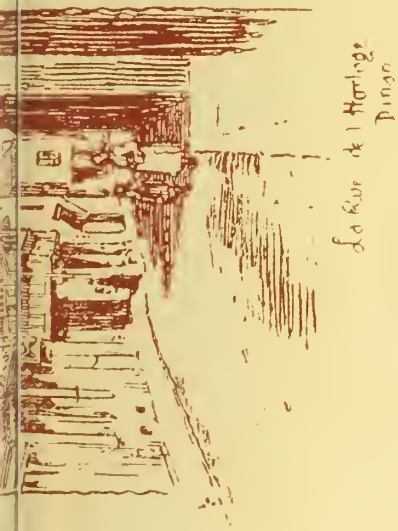
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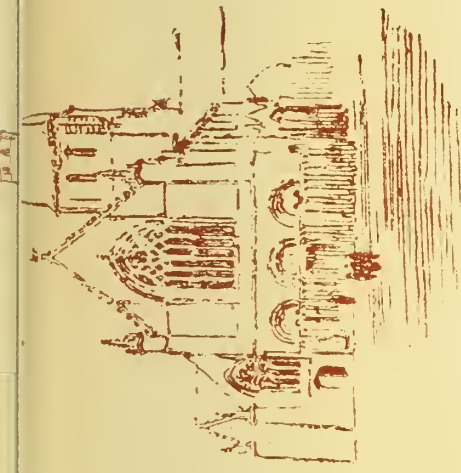
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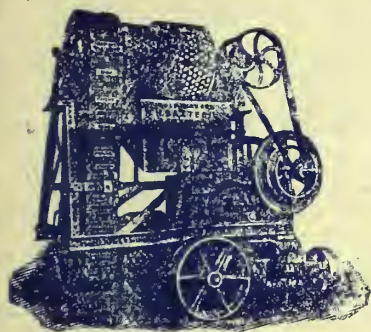
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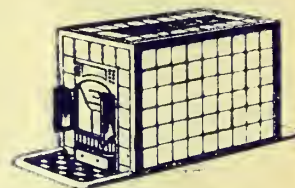
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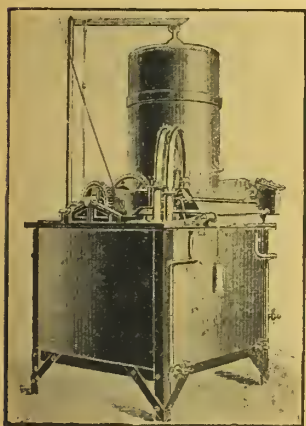
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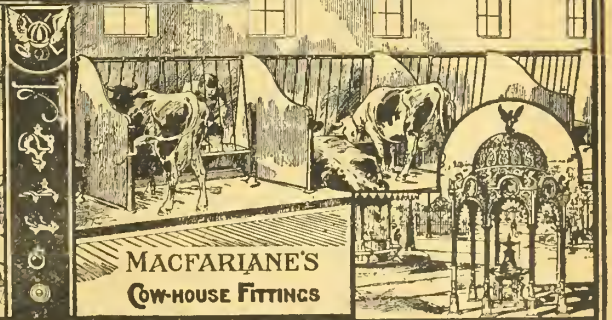
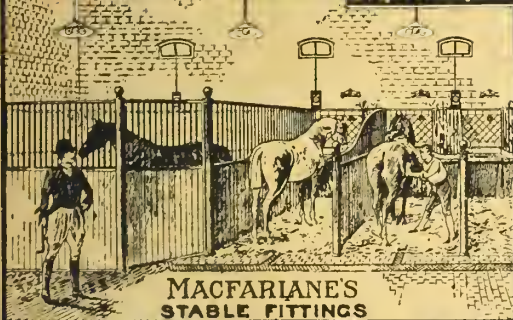
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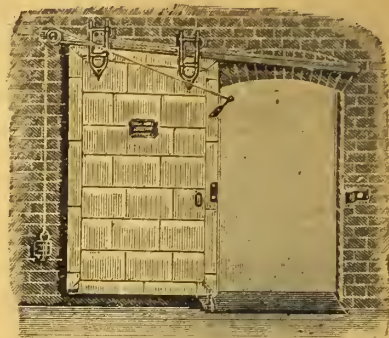
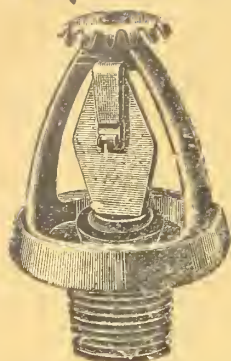
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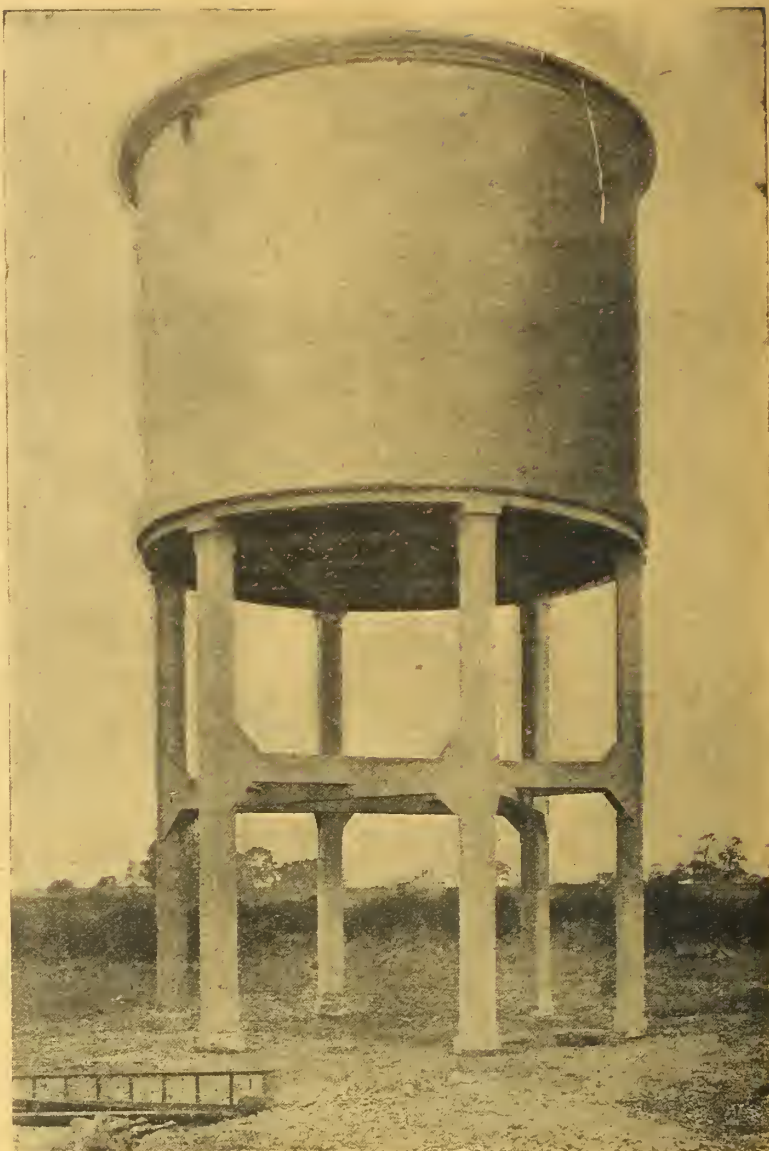
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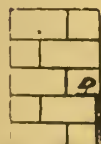
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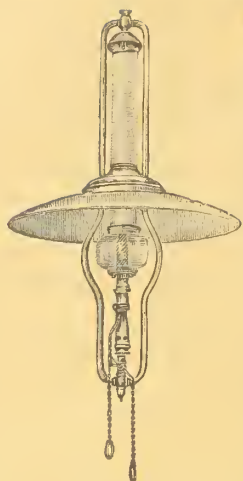


Fig. 604. Welsbach-Kern Patent Lamp for Interior Lighting, made in three sizes, giving from 150 to 600 candle power. Prices £1 13s. to £4 4s. 0d.

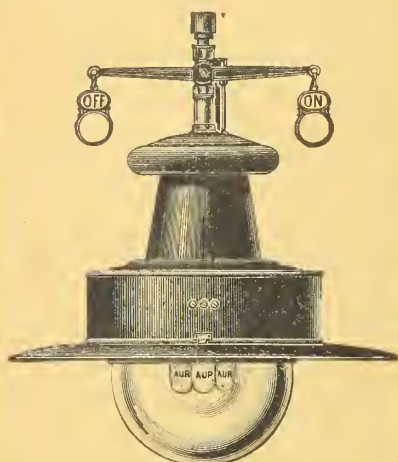


Fig. 621. Welsbach Inverted Storm-proof Arc Lamp, giving 200 candle power, from 40/0.



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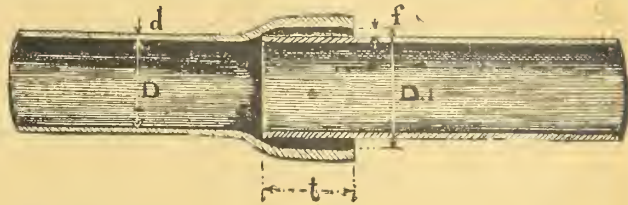
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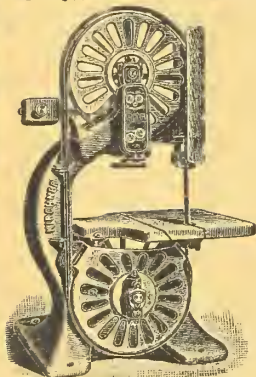
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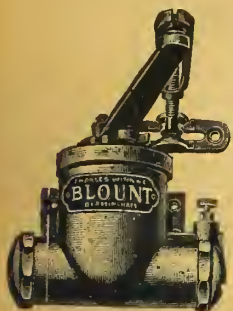
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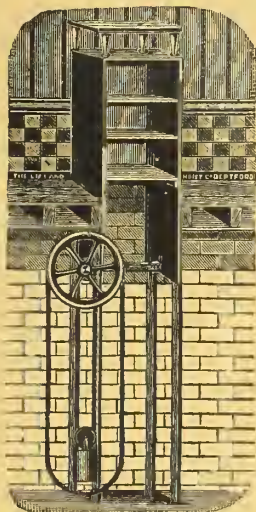
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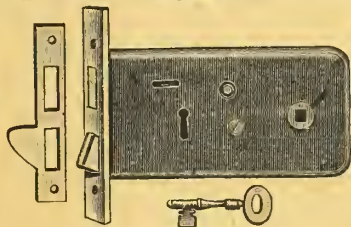
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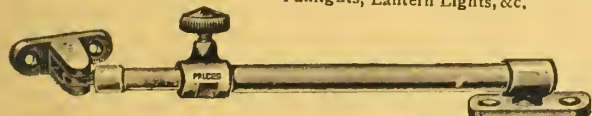
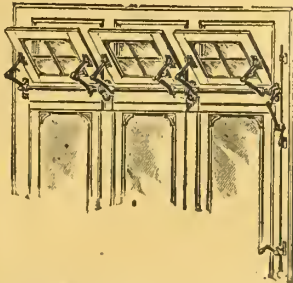
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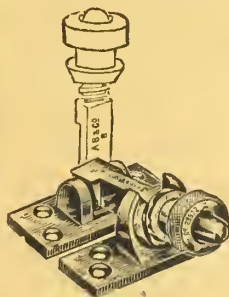
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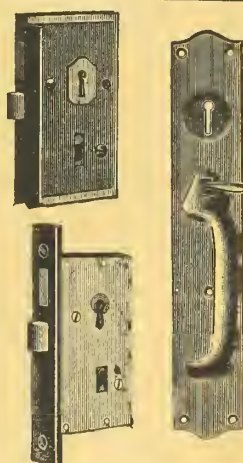
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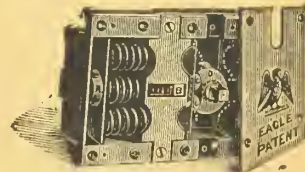
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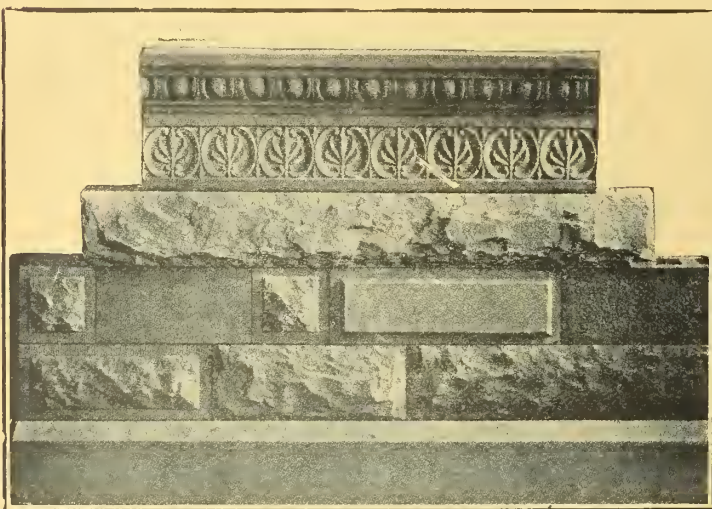
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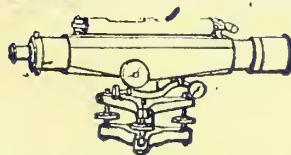
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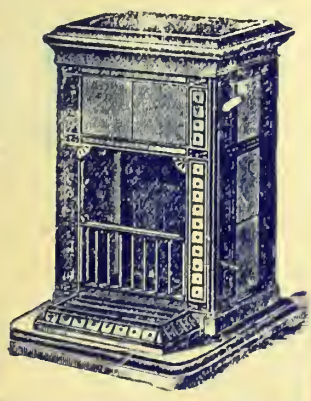
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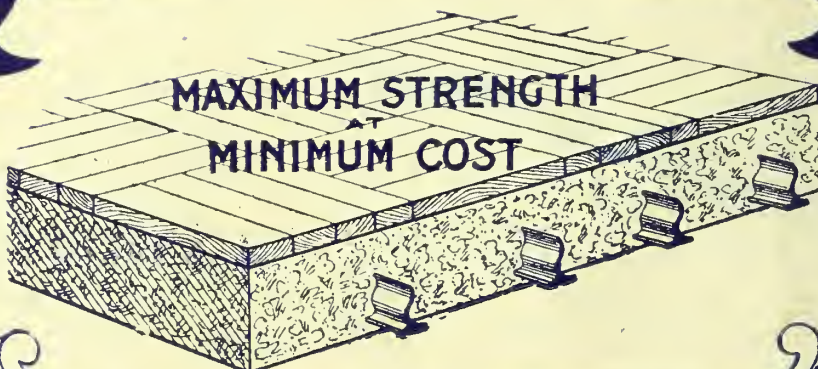
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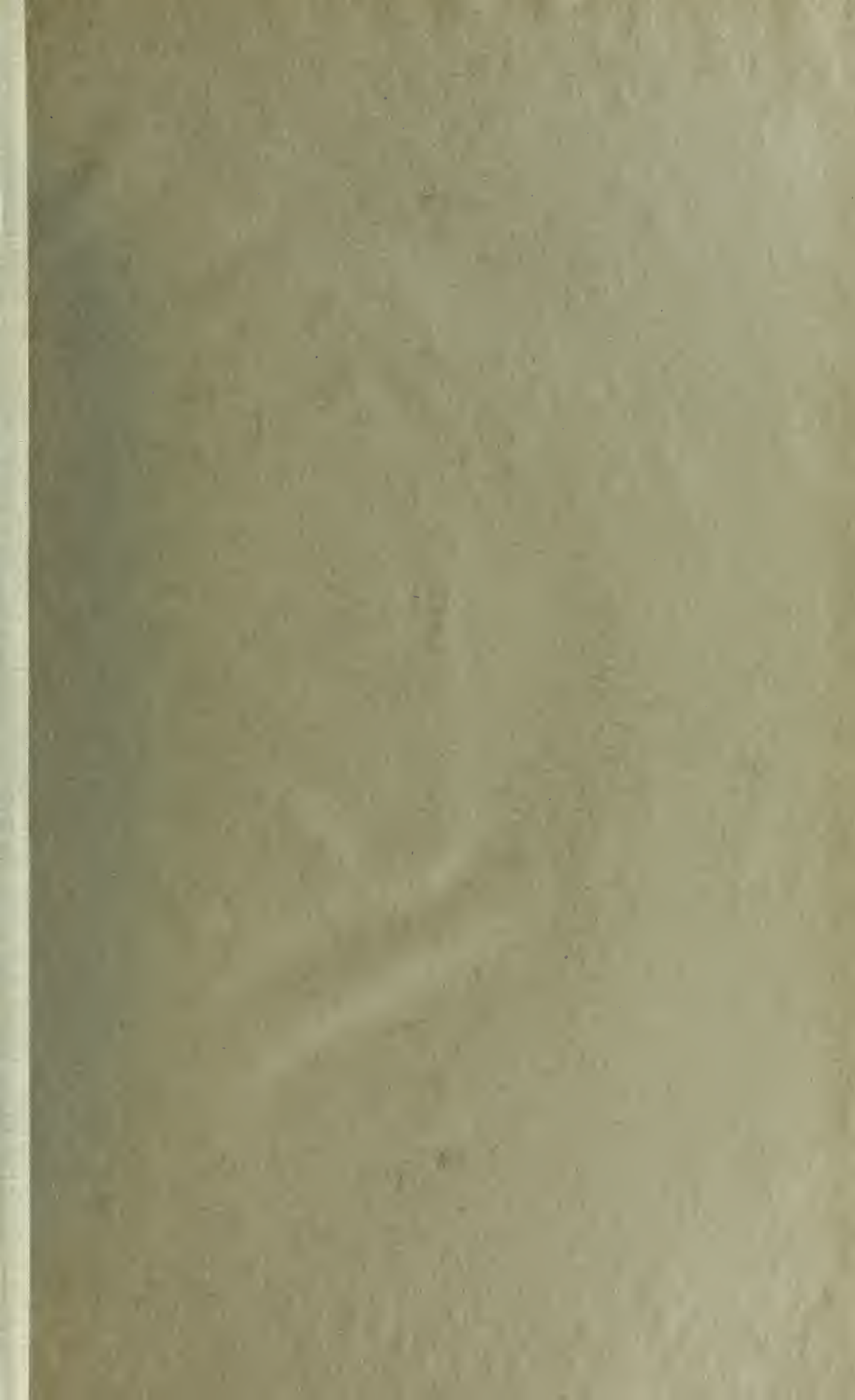
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